

Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 1 of 125

SAFETY DATA SHEET

SECTION 1

IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

As of the revision date above, this SDS meets the regulations in the United Kingdom excluding Northern Ireland.

1.1. PRODUCT IDENTIFIER

Product Name: A	P/E CORE 100	
Product Description:	Severely Treated	Base Oils
Product Code:	301010101017,	927434-60

Registration Name:

Distillates (petroleum), solvent-dewaxed heavy paraffinic Distillates (petroleum), hydrotreated heavy paraffinic

Identification Number: (CAS #)64742-65-0; (CAS #)64742-54-7

Registration Number:

01-2119471299-27-0019; 01-2119471299-27 01-2119484627-25-0025; 01-2119484627-25

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST Intended Use: Base oil

Identified Uses: Manufacture of substance

Distribution of substance Use as an intermediate Formulation and (re)packing of substances and mixtures Use in Coatings - Industrial Use in Cleaning Agents - Industrial Use in oil field drilling and production operations - Industrial Lubricants - Industrial Metal working fluids / rolling oils - Industrial Use as binders and release agents - Industrial Use as a fuel - Industrial Functional Fluids - Industrial Use in laboratories - Industrial Rubber production and processing Polymer processing - Industrial Water treatment chemicals - Industrial Mining chemicals Use in Coatings - Professional Use in Cleaning Agents - Professional Use in oil field drilling and production operations - Professional Lubricants - Professional (Low Release) Lubricants - Professional (High Release)



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 2 of 125

> Metal working fluids / rolling oils - Professional Use as binders and release agents - Professional Agrochemical uses - Professional Use as a fuel - Professional Functional Fluids - Professional Road and construction applications Use in laboratories - Professional Explosives manufacture & use Polymer processing - Professional Water treatment chemicals - Professional Use in Coatings - Consumer Use in Cleaning Agents - Consumer Lubricants - Consumer (Low Release) Lubricants - Consumer (High Release) Agrochemical uses - Consumer Use as a fuel - Consumer Functional Fluids - Consumer

See Section 16 for list of REACH Use Descriptors for Identified Uses shown above.

Uses advised against: This product is not recommended for any industrial, professional or consumer use other than the Identified Uses above.

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Supplier: ExxonMobil Petroleum & Chemical BV

POLDERDIJKWEG B-2030 Antwerpen Belgium

Product Technical Information: Supplier General Contact: SDS Internet Address: E-Mail: Supplier / Registrant: (UK) 0800 028 2851 (UK) 0800 028 2851 www.msds.exxonmobil.com sds.uk@exxonmobil.com (BE) +32 3 790 3111

1.4. EMERGENCY TELEPHONE NUMBER

24 Hour Emergency Telephone: National Poison Control Centre: (UK) (+44) 870 8200418 (UK) 111

SECTION 2

HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF SUBSTANCE OR MIXTURE

Classification according to CLP

Aspiration toxicant: Category 1., H304: May be fatal if swallowed and enters airways.

2.2. LABEL ELEMENTS

Label elements according to CLP



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 3 of 125

Pictograms:



Signal Word: Danger

Hazard Statements:

Health:

H304: May be fatal if swallowed and enters airways.

Precautionary Statements:

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P331: Do NOT induce vomiting.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents and container in accordance with local regulations.

Contains: Distillates (petroleum), hydrotreated heavy paraffinic; Distillates (petroleum), solvent-dewaxed heavy paraffinic

2.3. OTHER HAZARDS

Physical / Chemical Hazards:

No significant hazards.

Health Hazards:

High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation.

Environmental Hazards:

No significant hazards.Material does not meet the criteria for PBT or vPvB in accordance with REACH Annex XIII.

SECTION 3

COMPOSITION / INFORMATION ON INGREDIENTS

3.1. SUBSTANCES

This material is defined as a substance. This SDS covers materials that have different CAS#. The composition is 100% of one of the CAS# in the Reportable Hazardous Substance(s) or Complex Substance(s) table.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 4 of 125

Reportable hazardous substance(s) complying with the classification criteria and/or with an exposure limit (OEL)

Name	CAS#	EC#	Registration#	Concentration *	GHS/CLP classification
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	265-157-1	01-2119484627-25	100%	Asp. Tox. 1 H304
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	265-169-7	01-2119471299-27	100%	Asp. Tox. 1 H304

Note - any classification in brackets is a GHS building block that was not adopted in CLP and therefore is not applicable in the countries which have implemented CLP and is shown for informational purposes only.

Note: See SDS Section 16 for full text of hazard statements.

3.2. MIXTURES Not Applicable. This product is regulated as a substance.

SECTION 4

FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek in mediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Local necrosis as evidenced by delayed onset of pain and tissue damage a few hours after injection.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5

FIRE FIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 5 of 125

flames.

Unsuitable Extinguishing Media: Straight streams of water

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur oxides

5.3. ADVICE FOR FIRE FIGHTERS

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

FLAMMABILITY PROPERTIES

 Flash Point [Method]: >194°C (381°F) [ASTM D-92]

 Upper/Lower Flammable Limits (Approximate volume % in air):
 UEL: 7.0
 LEL: 0.9
 [Estimated]

 Autoignition Temperature:
 No data available

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: respiratory protection will be necessary only in special cases, e.g., formation of mists. Half-face or full-face respirator with filter(s) for dust/organic vapor or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to hydrocarbons are recommended. Gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

6.2. ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 6 of 125

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

6.4. REFERENCES TO OTHER SECTIONS

See Sections 8 and 13.

HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

The type of container used to store the material may affect static accumulation and dissipation. Do not store in open or unlabelled containers.

7.3. SPECIFIC END USES

Section 1 informs about identified end-uses. No industrial or sector specific guidance available.

SECTION 8

SECTION 7

EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit/Sta	ndard	Note	Source
Distillates (petroleum), hydrotreated		TWA	5 mg/m3		ACGIH
heavy paraffinic	Inhalable		-		
	fraction.				
Distillates (petroleum), solvent-		TWA	5 mg/m3		ACGIH
dewaxed heavy paraffinic	Inhalable		-		
	fraction.				



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 7 of 125

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following is recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction).

Note: Information about recommended monitoring procedures can be obtained from the relevant agency(ies)/institute(s):

UK

Health and Safety Executive (HSE)

DERIVED NO EFFECT LEVEL (DNEL)/DERIVED MINIMAL EFFECT LEVEL (DMEL)

Worker

Substance Name	Dermal	Inhalation
Distillates (petroleum), hydrotreated	NA	5.4 mg/m3 DNEL, Chronic
heavy paraffinic		Exposure, Local Effects
Distillates (petroleum), solvent-	NA	5.4 mg/m3 DNEL, Chronic
dewaxed heavy paraffinic		Exposure, Local Effects

Consumer

Substance Name	Dermal	Inhalation	Oral
Distillates (petroleum), hydrotreated	NA	1.2 mg/m3 DNEL, Chronic	NA
heavy paraffinic		Exposure, Local Effects	
Distillates (petroleum), solvent-	NA	1.2 mg/m3 DNEL, Chronic	NA
dewaxed heavy paraffinic		Exposure, Local Effects	

Note: The Derived No Effect Level (DNEL) is an estimated safe level of exposure that is derived from toxicity data in accord with specific guidance within the REACH regulation. The DNEL may differ from an Occupational Exposure Limit (OEL) for the same chemical. OELs may be recommended by an individual company, a governmental regulatory body or an expert organization, such as the Scientific Committee for Occupational Exposure Limits (SCOEL) or the American Conference of Governmental Industrial Hygienists (ACGIH). OELs are considered to be safe exposure levels for a typical worker in an occupational setting for an 8-hour work shift, 40 hour work week, as a time weighted average (TWA) or a 15 minute short-term exposure limit (STEL). While also considered to be protective of health, OELs are derived by a process different from that of REACH.

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Substance Name	Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment	Soil	Oral (secondary poisoning)
Distillates (petroleum), hydrotreated heavy paraffinic	NA	NA	NA	NA	NA	NA	9.33 mg / kg (food)
Distillates (petroleum), solvent- dewaxed heavy paraffinic	NA	NA	NA	NA	NA	NA	9.33 mg / kg (food)

8.2. EXPOSURE CONTROLS



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 8 of 125

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

For Summary of Risk Management Measures across all identified uses, see Annex.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 9 of 125

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid Colour: Pale Yellow Odour: Characteristic Odour Threshold: No data available Not technically feasible pH: Melting Point: Not technically feasible Freezing Point: No data available Initial Boiling Point / and Boiling Range: > 316°C (600°F) [Estimated] Flash Point [Method]: >194°C (381°F) [ASTM D-92] Evaporation Rate (n-butyl acetate = 1): No data available Flammability (Solid, Gas): Not technically feasible Upper/Lower Flammable Limits (Approximate volume % in air): UEL: 7.0 LEL: 0.9 [Estimated] Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated] Vapour Density (Air = 1): > 2 at 101 kPa [Estimated] Relative Density: 0.9 [ASTM D1298] Solubility(ies): water Negligible Partition coefficient (n-Octanol/Water Partition Coefficient): > 3.5 [Estimated] Autoignition Temperature: No data available Decomposition Temperature: No data available Viscosity: 19.8 cSt (19.8 mm2/sec) at 40°C [ASTM D 445] Explosive Properties: None Oxidizing Properties: None

9.2. OTHER INFORMATION

Pour Point: -18°C (0°F) [ASTM D97] DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10

STABILITY AND REACTIVITY

10.1. REACTIVITY: See sub-sections below.

10.2. CHEMICAL STABILITY: Material is stable under normal conditions.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

10.4. CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

10.5. INCOMPATIBLE MATERIALS: Strong oxidisers

10.6. HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

SECTION 11 TOXICOLOGICAL INFORMATION



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 10 of 125

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	Conclusion / Remarks		
Inhalation			
Acute Toxicity: (Rat) LC50 > 5000 mg/m3 Test scores or other study results do not meet criteria for classification.	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403		
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.		
Ingestion			
Acute Toxicity (Rat): LD50 > 5000 mg/kg Test scores or other study results do not meet criteria for classification.	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 401		
Skin			
Acute Toxicity (Rabbit): LD50 > 5000 mg/kg Test scores or other study results do not meet criteria for classification.	Minimally Toxic. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 402		
Skin Corrosion/Irritation (Rabbit): Data available. Test scores or other study results do not meet criteria for classification.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 404		
Еуе			
Serious Eye Damage/Irritation (Rabbit): Data available. Test scores or other study results do not meet criteria for classification.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 405		
Sensitisation			
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.		
Skin Sensitization: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to be a skin sensitizer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 406		
Aspiration: Data available.	May be fatal if swallowed and enters airways. Based on physico- chemical properties of the material.		
Germ Cell Mutagenicity: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to be a germ cell mutagen. Based on test data for structurally similar materials.		
Carcinogenicity: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to cause cancer. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 451		
Reproductive Toxicity: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to be a reproductive toxicant. Based on test data for structurally similar materials.		
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.		
Specific Target Organ Toxicity (STOT)			
Single Exposure: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to cause organ damage from a single exposure.		
Repeated Exposure: Data available. Test scores or other study results do not meet criteria for classification.	Not expected to cause organ damage from prolonged or repeated exposure. Based on test data for structurally similar materials.		

OTHER INFORMATION

For the product itself:



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 11 of 125

Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals.

SECTION 12

ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

12.1. TOXICITY

Material -- Not expected to be harmful to aquatic organisms.

12.2. PERSISTENCE AND DEGRADABILITY

Biodegradation:

Material -- Expected to be inherently biodegradable

12.3. BIOACCUMULATIVE POTENTIAL

Material -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

12.4. MOBILITY IN SOIL

Material -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

Material -- Low potential to migrate through soil.

12.5. PERSISTENCE, BIOACCUMULATION AND TOXICITY FOR SUBSTANCE(S)

Material does not meet the Reach Annex XIII criteria for PBT or vPvB.

12.6. OTHER ADVERSE EFFECTS

No adverse effects are expected.

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	48 hour(s)	Daphnia magna	EL0 1000 - 10000 mg/l: data for similar
			materials
Aquatic - Acute Toxicity	96 hour(s)	Pimephales	LL0 100 mg/l: data for similar materials
		promelas	
Aquatic - Acute Toxicity	72 hour(s)	Pseudokirchneriella	EL0 100 mg/l: data for similar materials
		subcapitata	
Aquatic - Chronic Toxicity	21 day(s)	Daphnia magna	NOELR 10 - 1000 mg/l: data for similar
			materials
Aquatic - Chronic Toxicity	72 hour(s)	Pseudokirchneriella	NOELR 100 mg/l: data for similar
		subcapitata	materials

Persistence, Degradability and Bioaccumulation Potential



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 12 of 125

Media	Test Type	Duration	Test Results: Basis
Water	Ready Biodegradability	28 day(s)	Percent Degraded < 60 : similar
			material

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

13.1. WASTE TREATMENT METHODS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

European Waste Code: 13 02 05*

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

This material is considered as hazardous waste pursuant to The Hazardous Waste Regulations (HWR), and subject to the provisions of those Regulations.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (ADR/RID): 14.1-14.6 Not Regulated for Land Transport

INLAND WATERWAYS (ADN): 14.1-14.6 Not Regulated for Inland Waterways Transport

SEA (IMDG): 14.1-14.6 Not Regulated for Sea Transport according to IMDG-Code

SEA (MARPOL 73/78 Convention - Annex II):

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not classified according to Annex II



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 13 of 125

AIR (IATA): 14.1-14.6 Not Regulated for Air Transport

SECTION 15

REGULATORY INFORMATION

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA): AllC, DSL, ENCS, IECSC, ISHL, KECI, PICCS, TCSI, TSCA

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

Applicable UK legislation:

REACH [... Registration, Evaluation, Authorisation and Restriction of Chemicals ... and amendments thereto]

CLP [Classification, labelling and packaging of substances and mixtures.. and amendments thereto]

REACH Restrictions on the manufacturing, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII):

The following entries of Annex XVII may be considered for this product: None

15.2. CHEMICAL SAFETY ASSESSMENT

REACH Information: A Chemical Safety Assessment has been carried out for one or more substances present in the material.

SECTION 16	OTHER INFORMATION

IDENTIFIED USES:

Manufacture of substance (PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU10, SU3, SU8, SU9) Distribution of substance (PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, SU3, SU8, SU9) Use as an intermediate (PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU3, SU8, SU9) Formulation and (re)packing of substances and mixtures (PROC1, PROC14, PROC15, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, SU10, SU3)

Use in Coatings - Industrial (PROC1, PROC10, PROC13, PROC14, PROC15, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, SU3)

Use in Cleaning Agents - Industrial (PROC1, PROC10, PROC13, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8bSU3,)

Use in oil field drilling and production operations - Industrial (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU3)

Lubricants - Industrial (PROC1, PROC10, PROC13, PROC17, PROC18, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, SU3)

Metal working fluids / rolling oils - Industrial (PROC1, PROC10, PROC13, PROC17, PROC2, PROC3, PROC4, PROC5,



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 14 of 125

PROC7, PROC8a, PROC8b, PROC9, SU3)

Use as binders and release agents - Industrial (PROC1, PROC10, PROC13, PROC14, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8a, PROC8b, SU3) Use as a fuel - Industrial (PROC1, PROC16, PROC2, PROC3, PROC8a, PROC8b, SU3) Functional Fluids - Industrial (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, SU3) Use in laboratories - Industrial (PROC15, SU3) Rubber production and processing (PROC1, PROC13, PROC14, PROC15, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, SU10) Polymer processing - Industrial (PROC1, PROC13, PROC14, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, SU10, SU3) Water treatment chemicals - Industrial (PROC1, PROC13, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU3) Mining chemicals (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, SU3) Use in Coatings - Professional (PROC1, PROC10, PROC11, PROC13, PROC15, PROC19, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, SU22) Use in Cleaning Agents - Professional (PROC1, PROC10, PROC11, PROC13, PROC19, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU22) Use in oil field drilling and production operations - Professional (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU22) Lubricants - Professional (Low Release) (PROC1, PROC10, PROC11, PROC13, PROC17, PROC18, PROC2, PROC20, PROC3, PROC4, PROC8a, PROC8b, PROC9, SU22) Lubricants - Professional (High Release) (PROC1, PROC10, PROC11, PROC13, PROC17, PROC18, PROC2, PROC20, PROC3, PROC4, PROC8a, PROC8b, PROC9, SU22) Metal working fluids / rolling oils - Professional (PROC1, PROC10, PROC11, PROC13, PROC17, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, SU22) Use as binders and release agents - Professional (PROC1, PROC10, PROC11, PROC14, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, SU22) Agrochemical uses - Professional (PROC1, PROC11, PROC13, PROC2, PROC4, PROC8a, PROC8b, SU22) Use as a fuel - Professional (PROC1, PROC16, PROC2, PROC3, PROC8a, PROC8b, SU22) Functional Fluids - Professional (PROC1, PROC2, PROC20, PROC3, PROC8a, PROC9, SU22) Road and construction applications (PROC1, PROC10, PROC11, PROC13, PROC2, PROC8a, PROC8b, PROC9, SU22) Use in laboratories - Professional (PROC15, SU22) Explosives manufacture & use (PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, SU22) Polymer processing - Professional (PROC1, PROC14, PROC2, PROC21, PROC6, PROC8a, PROC8b, SU22) Water treatment chemicals - Professional (PROC1, PROC13, PROC2, PROC3, PROC4, PROC8a, PROC8b, SU22) Use in Coatings - Consumer (PC01, SU21) Use in Cleaning Agents - Consumer (PC04, SU21) Lubricants - Consumer (Low Release) (PC01, SU21) Lubricants - Consumer (High Release) (PC01, SU21) Agrochemical uses - Consumer (PC12, SU21) Use as a fuel - Consumer (PC13, SU21) Functional Fluids - Consumer (PC16, SU21)

REFERENCES: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, CONCAWE Product Dossiers, publications from other trade associations, such as the EU Hydrocarbon Solvents REACH Consortium, U.S. HPV Program Robust Summaries, the EU IUCLID Data Base, U.S. NTP publications, and other sources, as appropriate.

List of abbreviations and acronyms that could be (but not necessarily are) used in this safety data sheet: Acronym Full text

N/A Not applicable

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Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 15 of 125

N/D	Not determined
NE	Not established
VOC	Volatile Organic Compound
AIIC	Australian Inventory of Industrial Chemicals
AIHA WEEL	American Industrial Hygiene Association Workplace Environmental Exposure Limits
ASTM	ASTM International, originally known as the American Society for Testing and Materials (ASTM)
DSL	Domestic Substance List (Canada)
EINECS	European Inventory of Existing Commercial Substances
ELINCS	European List of Notified Chemical Substances
ENCS	Existing and new Chemical Substances (Japanese inventory)
IECSC	Inventory of Existing Chemical Substances in China
KECI	Korean Existing Chemicals Inventory
NDSL	Non-Domestic Substances List (Canada)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
TLV	Threshold Limit Value (American Conference of Governmental Industrial Hygienists)
TSCA	Toxic Substances Control Act (U.S. inventory)
UVCB	Substances of Unknown or Variable composition, Complex reaction products or Biological materials
LC	Lethal Concentration
LD	Lethal Dose
LL	Lethal Loading
EC	Effective Concentration
EL	Effective Loading
NOEC	No Observable Effect Concentration
NOELR	No Observable Effect Loading Rate

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

Asp. Tox. 1 H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

CLP Classification information was added.

dnel table notes information was modified.

Formulation and (re)packing of substances and mixtures: Annex Information information was modified.

GHS Health Classification information was deleted.

GHS Health Hazards information was added.

GHS Health Hazards information was deleted.

GHS Health Symbol information was deleted.

GHS Precautionary Statements - Disposal information was added.

GHS Precautionary Statements - Disposal information was deleted.

GHS Precautionary Statements - Response information was added.

GHS Precautionary Statements - Response information was deleted.

GHS Precautionary Statements - Storage information was added.

GHS Precautionary Statements - Storage information was deleted.

GHS Signal Word information was added.

GHS Signal Word information was deleted.

GHS Symbol information was added.

GHS Target Organ Phrase information was deleted.

Hazard Identification: Section 3 Footnotes for CLP tables information was modified.

Lubricants - Industrial: Annex Information information was modified.

Manufacture of substance: Annex Information information was modified.

Section 01: Company Contact Methods information was modified.

Section 01: Company Emergency Contact information was modified.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 16 of 125

Section 09: Flammable Limits - LEL information was modified. Section 09: Flammable Limits - UEL information was modified. Section 13: European Waste Code Hazardous Note information was modified. Section 15: EU Directives and Regulations information was modified. Section 15: National Chemical Inventory Listing information was modified. Section 15: REACH Annex XVII data information was added.

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Internal	Use Only		
MHC:	2A, 0B, 0, 0, 0, 0	PPEC:	A
DGN:	2017460XGB (541533)		

Section 1 Exposure Scenario Title		
Title:		
Manufacture of substance		
Use Descriptor		
Sector(s) of Use	SU10, SU3, SU8, SU9	
Process Categories	PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b	
Environmental Release Categories	ERC1, ERC4	
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (ncluding marine vessel/barge, road/rail car and bulk container).		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 17 of 125

Covers daily exposures up to 8 hours (unless stated differently)[G2]
Covers percentage substance in the product up to 100 %[G13]
Other given operational conditions affecting workers exposure
Assumes a good basic standard of occupational hygiene is implemented [G1]
Operation is carried out at elevated temperature (>20 C above ambient temperature)[OC7]
Contributing Scenarios/
Specific Risk Management Measures and Operating Conditions
(only required controls to demonstrate safe use listed)
General measures (Aspiration Hazard)
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also
if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measures. For substances classified as H304, the following
measures need to be implemented to control the aspiration hazard.
Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting.
General exposures (closed systems) PROC1
No other specific measures identified.
General exposures (closed systems) PROC2
No other specific measures identified.
General exposures (closed systems) PROC3
No other specific measures identified.
General exposures (open systems) PROC4
No other specific measures identified.
Process sampling PROC3
No other specific measures identified.
Laboratory activities PROC15
No other specific measures identified. Bulk transfore (closed systems) PROCSb
No other specific measures identified
Bulk transfors (open systems) PBOC8b
No other specific measures identified
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance
Bulk product storage PROC1
Store substance within a closed system
Bulk product storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic
Substance is complex UVCB
Duration frequency and amount
Annual site tonnage (tonnes/year): 600000 tons/yr
Continuous release
Emission Days (days/year): 300 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 2000000 kg / day
Regional use tonnage (tonnes/vear): 850000 tons/vr
Environmental factors not influenced by risk management



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 18 of 125

Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.0001
Release fraction to soil from process (initial release prior to RMM): 0.0001
Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 90 %
i reat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
01 =. >= 84.8 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Prevent discharge of undissolved substance to of recover from wastewater.
Siduge should be incinerated, contained of reclaimed.
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from westowater via demostic sewage treatment is: 04.7.%
Estimated substance removal from wastewater via domestic sewage treatment is. 94.7 %
The maximum allowable site toppage (MSafe) based on domestic sewage plant effluent release is: 5700000 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
During manufacturing no waste of the substance is generated [FTW/4]
Conditions and measures related to external recovery of waste
During manufacturing no waste of the substance is generated [ERW/2]
Section 3 Exposure Estimation
31 Health
The ECETOC TPA tool has been used to estimate workplace exposures unless otherwise indicated [C21]
3.2 Environment
The Hydrocarbon Block Method has been used to calculate environmental exposition with the Detrorisk model [EE2]
Section 4. Guidenee to check compliance with the Expectice Scenario
4 1 Hoalth
4.1. Rediti
Available hazard data do not enable the derivation of a DNEL for dermal initiant effects. [G32]
Prodicted exposures are not expected to exceed the DN(M)EL when the Rick Management Measures (Operational
Conditions outlined in Section 2 are implemented [G22]
Risk Management Measures are based on qualitative risk characterisation [G37]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are
managed to at least equivalent levels [G23]
42 Environment
Further details on scaling and control technologies are provided in factsheet
Guidance is based on assumed operating conditions which may not be applicable to all sites: thus, scaling may be
necessary to define appropriate site-specific risk management measures
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 19 of 125

combination.

Scaled local assessments for European refineries have been performed using site-specific data and are attached in PETRORISK file - 'Site-Specific Production' worksheet. [DSU6]



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 20 of 125

Title:	Section 1 Exposure Scenario Title	
Distribution of substance Use Descriptor Sector(s) of Use Process Categories Process Process Categories Process Process Process	Title:	
Use Descriptor Sector(s) of Use SU3, SU8, SU9 Process Categories PROC1, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8, PROC6B, PROC9 Environmental Release Categories ERC1, ERC2, ERC3, ERC4, ERC5, ERC6A, ERC6B, ERC6C, ERC6D, ERC7 Specific Environmental Release Category ESVOC 1.1.v1 Processes, tasks, activities covered ESVOC 1.1.v1 Devisition worker exposure Section 2.1 Control of worker exposure Product Characteristic Liquid Liquid Duration, frequency and amount Covers percentage substance in the product up to 100 %[G13] Other given operational conditions affecting workers exposure Assumes a good basic standard of occupational hygiene is implemented [G1] Operatis in	Distribution of substance	
Sector(s) of Use SU3, SU8, SU9 Process Categories PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9 Environmental Release Categories ERC67, ERC6, ERC6A, ERC6B, ERC67, ERC60, ERC60, ERC6A, ERC6B, ERC66, ERC60, ERC6A, ERC6B, Specific Environmental Release Category Processes, tasks, activities covered ESVOC 1.1.v1 Loading (including marine vessel/barge, rall/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities. Section 2.0 Operational conditions and risk management measures Section 2.1 Control of worker exposure Product Characteristic Liguid Duration, frequency and amount Covers ality exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13] Other given operational conditions affecting workers exposure Assumes a good basic standard of occupational hygiene is implemented [G1] Operation is demonstrate safe use listed) General measures (Aspiration Hazard) The H304 risk phrase (May be fatil fi swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also it is vornited to be implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard. Do not ingest. If swallowed then seek immediate medical attention. Do NOT	Use Descriptor	
Process Categories PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9 Environmental Release Categories ERC61, ERC2, ERC3, ERC4, ERC5, ERC6A, ERC6B, ERC6C, ERC6D, ERC7 Specific Environmental Release Category ESVOC 1.1.v1 Processes, tasks, activities covered ESVOC 1.1.v1 Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities. Section 2 Operational conditions and risk management measures Section 2.1 Control of worker exposure Product Characteristic Liquid Duration, frequency and amount Covers percentage substance in the product up to 100 %[G13] Other given operational conditions affecting workers exposure Assumes a good basic standard of occupational hygiene is implemented [G1] Operation is carried out at elevated temperature (>20 C above ambient temperature)[OC7] Control to demonstrate safe use listed) General measures (Aspriation Hazard) The H304 risk formate physicochemical properties (1.e. viscosity) that can occur during ingestion and also if it is worline following ingestion and physicochemical properties (1.e. viscosity) that can occur during ingestion and also if it is worline following ingestion and NNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For subst	Sector(s) of Use	SU3, SU8, SU9
Environmental Release Categories ERC1, ERC2, ERC3, ERC4, ERC5, ERC6A, ERC6B, ERC6C, ERC6D, ERC7 Specific Environmental Release Category ESVOC 1.1.11 Processes, tasks, activities covered Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities. Section 2 Operational conditions and risk management measures Section 2 Control of worker exposure Product Characteristic Liquid Duration, frequency and amount Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13] Other given operational conditions affecting workers exposure Assumes a good basic standard of occupational hygiene is implemented [G1] Operation is carried out at elevated temperature (>20 C above ambient temperature)[OC7] Contributing Scenarios/ Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed) General measures (Aspiration Hazard) The H304 risk phrase (May be fatal if swallowed and enters ainvays) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard. Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting. General exposures (closed systems) PROC1 No other specific measures identified. General exposures (closed systems) PROC4 No other specific measures identified. Process sampling PROC3 No other specific measures identified. Laboratory activities PROC15 No other specific measures identified. Buik transfers (closed systems) PROC8b	Process Categories	PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9
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Processes, tasks, activities covered Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities. Section 2.1 Control of worker exposure Product Characteristic Liquid Duration, frequency and amount Covers daily exposures up to 8 hours (unless stated differently][G2] Covers percentage substance in the product up to 100 %[G13] Other given operational conditions affecting workers exposure Assumes a good basic standard of occupational hygiene is implemented [G1] Operation is carried out at elevated temperature (>20 C above ambient temperature)[OC7] Contributing Scenarios/ Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed) General measures (Aspiration Hazard) The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard. Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting. General exposures (closed systems) PROC1 No other specific measures identified. General exposures (closed systems) PROC3 No other specific measures identified. Laboratory activities PROC15 No other specific measures identified. Bulk transfers (closed systems) PROC28 No other specific measures identified. Bulk transfers (closed systems) PROC28 No other specific measures identified. Bulk transfers (closed systems) PROC28 No other specific measures identified. Bulk transfers (closed systems) PROC28 No other specific measures identifie	Specific Environmental Release Category	ESVOC 1.1.v1
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Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 21 of 125

Drum and small package filling PROC9
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance. Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 1700 tons/yr
Continuous release.
Emission Days (days/year): 100 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 0.002
Maximum daily site tonnage (kg/d): 17000 kg / day
Regional use tonnage (tonnes/year): 850000 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.0001
Release fraction to soil from process (initial release prior to RMM): 0.00001
Release fraction to wastewater from process (initial release prior to RMM): 0.0000001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 90 %
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 64.4 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater.
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 110000 kg / day
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 110000 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
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Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 22 of 125

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 23 of 125

Section 1 Exposure Scenario Title	
Title:	
Use as an intermediate	
Use Descriptor	
Sector(s) of Use	SU3, SU8, SU9
Process Categories	PROC1, PROC15, PROC2, PROC3, PROC4, PROC8a,
	PROC8b
Environmental Release Categories	ERC6A
Specific Environmental Release Category	ESVOC 1.1.v1
Processes, tasks, activities covered	
Use as an intermediate (not related to Strictly Controlled Co	onditions). Includes incidental exposures during recycling/
recovery, material transfers, storage, sampling, associate	d laboratory activities, maintenance and loading (ncluding
marine vessel/barge, road/rail car and bulk container).	
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	kposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
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can be controlled by implementing risk management measu	Ires. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard.
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.
General exposures (closed systems) PROC1	
No other specific measures identified.	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (closed systems) PROC3	
No other specific measures identified.	
General exposures (open systems) PROC4	
No other specific measures identified.	
Process sampling PROC3	
Laboratory activities DBOC15	
No other specific measures identified	
INO other specific measures identified.	
Durk transfers (Closed Systems) PROCOD	
Bulk transfers (onen systems) PROC8b	
No other specific measures identified	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 24 of 125

Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Bulk product storage PROC1
Store substance within a closed system.
Bulk product storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 1500 tons/yr
Continuous release.
Emission Days (days/year): 100 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 15000 kg / day
Regional use tonnage (tonnes/year): 1500 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.00001
Release fraction to soil from process (initial release prior to RMM): 0.001
Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 80 %
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 66.2 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Prevent discharge of undissolved substance to or recover from wastewater.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 98000 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
This substance is consumed during use and no waste of the substance is generated [ETW5]
Conditions and measures related to external recovery of waste
This substance is consumed during use and no waste of the substance is generated [ERW3]
Section 3 Exposure Estimation



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 25 of 125

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 26 of 125

Section 1 Exposure Scenario Title	
Title:	
Formulation and (re)packing of substances and mixtures	
Use Descriptor	
Sector(s) of Use	SU10, SU3
Process Categories	PROC1, PROC14, PROC15, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC2
Specific Environmental Release Category	ESVOC 1.1.v1
Processes, tasks, activities covered	
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
Section 2.1 Control of worker exposure	
Product Characteristic	
Duration frequency and amount	
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	131
Other given operational conditions affecting workers ex	xposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
De not ingest If swellowed then each immediate medical	nazaro.
Conoral exposures (closed systems) PBOC1	alleniion. Do NOT induce vomiliing.
No other specific measures identified	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (closed systems) PROC3	
General exposures (closed systems) PROC3 No other specific measures identified.	
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4	
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified.	
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified. Batch processes at elevated temperatures Use in conta	ined batch processes PROC3
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified. Batch processes at elevated temperatures Use in conta No other specific measures identified.	ined batch processes PROC3
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified. Batch processes at elevated temperatures Use in conta No other specific measures identified. Process sampling PROC3	ined batch processes PROC3
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified. Batch processes at elevated temperatures Use in conta No other specific measures identified. Process sampling PROC3 No other specific measures identified.	ined batch processes PROC3
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified. Batch processes at elevated temperatures Use in conta No other specific measures identified. Process sampling PROC3 No other specific measures identified. Laboratory activities PROC15	ined batch processes PROC3
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified. Batch processes at elevated temperatures Use in conta No other specific measures identified. Process sampling PROC3 No other specific measures identified. Laboratory activities PROC15 No other specific measures identified. Bulk transfers Dedicated facility PROC2b	ined batch processes PROC3
General exposures (closed systems) PROC3 No other specific measures identified. General exposures (open systems) PROC4 No other specific measures identified. Batch processes at elevated temperatures Use in conta No other specific measures identified. Process sampling PROC3 No other specific measures identified. Laboratory activities PROC15 No other specific measures identified. Bulk transfers Dedicated facility PROC8b No other specific measures identified.	ined batch processes PROC3



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 27 of 125

Mixing operations (open systems) PROC5
No other specific measures identified.
Manual Transfer from/pouring from containers Non-dedicated facility PROC8a
No other specific measures identified.
Drum/batch transfers Dedicated facility PROC8b
No other specific measures identified.
Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC14
No other specific measures identified.
Drum and small package filling PROC9
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/vear): 30000 tons/vr
Continuous release
Emission Days (days/year): 300 days/yr
Eraction of FU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 100000 kg / day
Regional use tonnage (tonnes/vear): 850000 tons/vr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EE1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Pelease fraction to air from process (after typical onsite DMMs consistent with The Solvent Emissions Pegulations
requirements): [OOC11] 0.0025
Release fraction to soil from process (initial release prior to RMM): 0.0001
Release fraction to wastewater from process (initial release prior to RMM): 0.00005
Technical conditions and massures at process level (course) to provent release
Common procession york across sites thus poper release release estimates used
Common practices vary across sites thus conservative process release estimates used.
I echnical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soll
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of $=: >=$
U %
Risk from environmental exposure is ariven by
reat air emissions to provide a typical removal (or abatement?) efficiency of: 0 %
reat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
07 =: >= 09.5 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Prevent discharge of undissolved substance to or recover from wastewater.
Sludge should be incinerated, contained or reclaimed.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 28 of 125

Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 570000 kg / dav Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Risk Management Measures are based on qualitative risk characterisation. [G37] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 29 of 125

Title: Use in Coatings - Industrial Use Descriptor Sector(s) of Use Process Categories PROC1, PROC10, PROC13, PROC14, PROC15, PROC2 PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9 Environmental Release Categories ERC4 Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 4.3a.v1 Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised berging and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised berging and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised berging and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised berging and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised berging and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised berging and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised berging and transfer from bulk and semi-bulk application by spray.	
Use in Coatings - Industrial Use Descriptor Sector(s) of Use SU3 Process Categories PROC1, PROC10, PROC13, PROC14, PROC15, PROC2 PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9 Environmental Release Categories ERC4 Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 4.3a.v1 Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised between the set of	
Use Descriptor Sector(s) of Use SU3 Process Categories PROC1, PROC10, PROC13, PROC14, PROC15, PROC2 PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9 Environmental Release Categories ERC4 Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 4.3a.v1 Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised between the specific of the section of the sectio	
Sector(s) of Use SU3 Process Categories PROC1, PROC10, PROC13, PROC14, PROC15, PROC2 PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9 Environmental Release Categories ERC4 Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 4.3a.v1 Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised berged	
Process Categories PROC1, PROC10, PROC13, PROC14, PROC15, PROC2 PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9 Environmental Release Categories ERC4 Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 4.3a.v1 Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip. flow, fluidised bergenerated	
Environmental Release Categories ERC4 Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 4.3a.v1 Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bergenerated	
Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 4.3a.v1 Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bergenerated by the storage of the	
Processes, tasks, activities covered Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised be	
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised be	
on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.	
Section 2.1 Control of worker exposure	
Product Characteristic	
Duration frequency and amount	
Covers daily exposures up to 8 hours (upless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational bygiene is implemented [G1]	
Operation is carried out at elevated temperature (>20 C above ambient temperature)[OC7]	
Contributing Scenarios/	
Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.	
Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting.	
General exposures (closed systems) with sample collection PROC1	
No other specific measures identified.	
General exposures (closed systems) with sample collection PROC2 No other specific measures identified. Built transfers Dedicated facility DROC2b	
No other specific measures identified	
Film formation - force drving, stoving and other technologies Use in contained systems Elevated	
temperature PROC2	
No other specific measures identified.	
Film formation - air drying (open systems) PROC4	
No other specific measures identified.	
Preparation of material for application Mixing operations (closed systems) PROC3	
No other specific measures identified.	
Preparation of material for application Mixing operations (open systems) PROC5	
No other specific measures identified.	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 30 of 125

Spraying (automatic/robotic) PROC7
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Spraying/fogging by manual application PROC7
Wear a respirator conforming to EN140 with Type A filter or better.
Material transfers Non-dedicated facility PROC8a
No other specific measures identified.
Material transfers Dedicated facility PROC8b
No other specific measures identified.
Roller, spreader, flow application PROC10
No other specific measures identified.
Dipping, immersion and pouring PROC13
No other specific measures identified.
Laboratory activities PROC15
No other specific measures identified.
Material transfers Drum/batch transfers Transfer from/pouring from containers PROC9
No other specific measures identified.
Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC14
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 10000 tons/yr
Continuous release.
Emission Days (days/year): 300 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 35000 kg / day
Regional use tonnage (tonnes/year): 10000 tons/yr
Environmental factors not influenced by risk management
Linvironmental lactors not innuenced by hisk management
Local freshwater dilution factor [EF1] 10
Local freshwater dilution factor: [EF1] 10 Local marine water dilution factor: [EF2] 100
Local freshwater dilution factor: [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure
Local freshwater dilution factor: [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.00002 Technical conditions and measures at process level (source) to prevent release
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.00002 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical conditions and measures to reduce or limit discharges, air emissions and releases to coil
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.00002 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.00002 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.98 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.00002 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >= 0 %

Risk from environmental exposure is driven by



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 31 of 125

Treat air emissions to provide a typical removal (or abatement?) efficiency of: 90 % Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency of =: >= 71.2 % Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from wastewater. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100000 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 32 of 125

Section 1 Exposure Scenario Title		
Title:		
Use in Cleaning Agents - Industrial		
Use Descriptor		
Sector(s) of Use	SU3	
Process Categories	PROC1, PROC10, PROC13, PROC2, PROC3, PROC4,	
	PROC7, PROC8a, PROC8b	
Environmental Release Categories	ERC4	
Specific Environmental Release Category	ESVOC 1.1.v1.ESVOC 4.4a.v1	
Processes, tasks, activities covered		
Covers the use as a component of cleaning products includ	ing transfer from storage pouring/unloading from drums or	
containers, exposures during mixing/diluting in the preparat	ory phase and cleaning activities (including spraving	
brushing, dipping, wiping, automated and by hand), related	equipment cleaning and maintenance.	
Section 2 Operational conditions and risk manageme	nt measures	
Section 2.1 Control of worker exposure		
Broduct Characteristic		
Duration frequency and amount		
Covers deily experience up to 9 hours (upless stated differe		
Covers daily exposures up to a nours (unless stated difference)	101	
Covers percentage substance in the product up to 100 %[G		
Other given operational conditions affecting workers e	(posure	
Assumes a good basic standard of occupational hygiene is		
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[UC7]	
Contributing Scenarios/		
Specific Risk management measures and Operating Co	naitions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)	ain ways) relates to restantial for conjustice or non-	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-	
quantinable nazaro determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
II It is vomited following ingestion. A DNEL cannot be derive	0. Risks from the physicochemical hazards of substances	
can be controlled by implementing fisk management measures	hererd	
Do not ingost If swallowed then sock immediate medical	nazaru.	
Bulk transfors Dedicated facility PROCSh		
No other specific measures identified	Buik transfers Dedicated facility PROUSD	
Automated process with (semi) closed systems lise in	contained systems PROC2	
Automated process with (semi) closed systems Use in	contained systems PROC2	
Automated process with (semi) closed systems Use in No other specific measures identified.	contained systems PROC2	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified	contained systems PROC2 ners Dedicated facility PROC8b	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified.	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3 No other specific measures identified.	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3 No other specific measures identified. Dipping, immersion and pouring PROC13	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3 No other specific measures identified. Dipping, immersion and pouring PROC13 No other specific measures identified.	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3 No other specific measures identified. Dipping, immersion and pouring PROC13 No other specific measures identified. Cleaning with low-pressure washers PROC10	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3 No other specific measures identified. Dipping, immersion and pouring PROC13 No other specific measures identified. Cleaning with low-pressure washers PROC10 No other specific measures identified.	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3 No other specific measures identified. Dipping, immersion and pouring PROC13 No other specific measures identified. Cleaning with low-pressure washers PROC10 No other specific measures identified. Cleaning with high pressure washers PROC7	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature	
Automated process with (semi) closed systems Use in No other specific measures identified. Filling / preparation of equipment from drums or contai No other specific measures identified. Use in contained batch processes Automated process PROC3 No other specific measures identified. Dipping, immersion and pouring PROC13 No other specific measures identified. Cleaning with low-pressure washers PROC10 No other specific measures identified. Cleaning with high pressure washers PROC7 Minimise exposure by partial enclosure of the operation or other specific of the operation or other specific of the operation of the ope	contained systems PROC2 ners Dedicated facility PROC8b with (semi) closed systems Elevated temperature equipment and provide extract ventilation at openings.	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 33 of 125

No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 100 tons/yr
Continuous release.
Emission Days (days/year): 20 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 5000 kg / day
Regional use tonnage (tonnes/year): 10000 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 1
Release fraction to soil from process (initial release prior to RMM): 0
Release fraction to wastewater from process (initial release prior to RMM): 0.0000001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required
If discharging to domestic sewage treatment plant, no one to waterwater reduced in the required on site wastewater removal efficiency of =: >=
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of 70 %
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: $>= 64.4$ %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Prevent discharge of undissolved substance to or recover from wastewater.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 33000 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 34 of 125

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 35 of 125

Section 1 Exposure Scenario Title		
Title:		
Use in oil field drilling and production operations - Industrial		
Use Descriptor		
Sector(s) of Use	SU3	
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b	
Environmental Release Categories	ERC4	
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.5a.v1	
Processes, tasks, activities covered		
Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers,		
on-site formulation, well head operations, shaker room activities and related maintenance.		
Section 2 Operational conditions and risk management measures		
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated differently)[G2]		
Covers percentage substance in the product up to 100 %[G13]		
Other given operational conditions affecting workers exposure		
Assumes a good basic standard of occupational hygiene is implemented [G1]		
Assumes use at not more than 20°C above ambient temperature[G15]		
Contributing Scenarios/		
Specific Risk Management Measures and Operating Conditions		
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)		
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-		
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances		
can be controlled by implementing risk management measures. For substances classified as H304, the following		
measures need to be implemented to control the aspiration nazard.		
Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting.		
Buik transfers bedicated facility PROC8D		
Filling / preparation of equipment from drums or containers Dedicated facility PROC8b		
No other specific measures identified		
Drilling mud (re-)formulation Use in contained batch processes PROC3		
No other specific measures identified.		
Drill floor operations PROC4		
No other specific measures identified.		
Operation of solids filtering equipment Elevated temperature PROC4		
Provide the operation with a properly sited receiving hood.		
Cleaning of solids filtering equipment Non-dedicated facility PROC8a		
No other specific measures identified.		
Treatment and disposal of filtered solids Use in contained batch processes PROC3		
No other specific measures identified.		
Process sampling PROC3		
No other specific measures identified.		
General exposures (closed systems) PROC1		
	I	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 36 of 125

Pouring from small containers Non-dedicated facility PROC8a		
No other specific measures identified.		
General exposures (open systems) PROC4		
No other specific measures identified.		
Equipment cleaning and maintenance PROC8a		
Drain down system prior to equipment break-in or maintenance.		
General exposures (closed systems) PROC1		
No other specific measures identified.		
General exposures (closed systems) PROC2		
No other specific measures identified.		
Storage PROC1		
Store substance within a closed system.		
Storage PROC2		
Store substance within a closed system.		
Section 2.2 Control of environmental exposure		
Product characteristics		
Predominantly hydrophobic.		
Substance is complex UVCB.		
Duration, frequency and amount		
Annual site tonnage (tonnes/vear): Not Applicable		
Emission Days (days/year): Not Applicable		
Fraction of EU tonnage used in region: 1		
Fraction of Regional tonnage used Locally: Not Applicable		
Maximum daily site tonnage (kg/d): Not Applicable		
Regional use tonnage (tonnes/vear): 10 tons/vr		
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EE1] Not Applicable		
Local marine water dilution factor: [EF2] Not Applicable		
Other given operational conditions affecting environmental exposure		
Release fraction to air from process (initial release prior to RMM): Not Applicable		
Release fraction to wastewater from process (initial release prior to RMM): Not Applicable		
Technical conditions and measures at process level (source) to prevent release		
Discharge to aquatic environment is restricted (see Section 4.2) [TCS2]		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil		
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =:		
Not Applicable		
Treat air emissions to provide a typical removal (or abatement?) efficiency of Not Applicable		
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency		
of = Not Applicable		
Organisation measures to prevent/limit release from site		
Not applicable		
Conditions and measures related to municipal sewage treatment plant		
Assumed domestic sewage treatment plant effluent flow is:[STP5] Not Applicable		
The maximum allowable site toppage (MSafe) based on domestic sewage plant effluent release is: Not Applicable		
Total efficiency of removal from wastewater after oneite and offeite (domestic treatment plant) DMMs is: Not		
Annlicable		
Conditions and measures related to external treatment of wasts for disposal		
Every sector of the sector of		
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]		
Conditions and measures related to external recovery of waste		
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]		


Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 37 of 125

Section 3 Exposure Estimation

3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

3.2. Environment

Qualitative approach used to conclude safe use [EE8]

Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment [EE7]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Discharge to aquatic environment is restricted by law and industry prohibits release [DSU9]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 38 of 125

Section 1 Exposure Scenario Title	
Title:	
Lubricants - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC10, PROC13, PROC17, PROC18, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4, ERC7
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.6a.v1
Processes, tasks, activities covered	
Covers the use of formulated lubricants in closed and open machinery/engines and similar articles, reworking on reject	systems including transfer operations, operation of articles, equipment maintenance and disposal of wastes.
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	(posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard.
Do not ingest. If swallowed then seek immediate medical a	attention. Do NOT induce vomiting.
General exposures (closed systems) PROC1	
No other specific measures identified.	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (Closed Systems) PROU3	
No other specific measures identified.	
No other energific measures identified	
Bulk transfors Dedicated facility PROC8b	
No other specific measures identified	
Filling / preparation of equipment from drums or containers Non-dedicated facility PROC8a	
No other specific measures identified.	
Initial factory fill of equipment PROC9	
No other specific measures identified.	
Operation and lubrication of high energy open equipment PROC17	
Provide extract ventilation to points where emissions occur.	
Manual Rolling, Brushing PROC10	
Initial factory fill of equipment PROC9 No other specific measures identified. Operation and lubrication of high energy open equipment PROC17 Provide extract ventilation to points where emissions occur. Manual Rolling, Brushing PROC10	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 39 of 125

No other specific measures identified.	
Treatment by dipping and pouring PROC13	
No other specific measures identified.	
Spraying PROC7	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	
Maintenance (of larger plant items) and machine set up Dedicated facility Elevated temperature PROC8b	
No other specific measures identified.	
Maintenance of small items Non-dedicated facility PROC8a	
No other specific measures identified.	
Remanufacture of reject articles PROC9	
No other specific measures identified.	
Storage PROC1	
Store substance within a closed system.	
Storage PROC2	
Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Substance is complex LIVCR	
Substance is complex 0VCB.	
Annual site tennage (tennes/year): 100 tens/yr	
Continuous release	
Emission Days (days/year): 20 days/yr	
Eraction of El Ltonnage used in region: 0.1	
Fraction of Regional tonnage used Locally: 1	
Maximum daily site tonnage (kg/d): 5000 kg / day	
Regional use tonnage (tonnes/year): 310000 tons/yr	
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EE1] 10	
Local marine water dilution factor: [EF2] 100	
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM): 0.0005	
Release fraction to soil from process (initial release prior to RMM): 0.001	
Release fraction to wastewater from process (initial release prior to RMM): 0.000001	
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=	
0 %	
Risk from environmental exposure is driven by	
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 70 %	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency	
of =: >= 64.5 %	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Prevent discharge of undissolved substance to or recover from wastewater.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 40 of 125

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 33000 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Scaled local assessments for European refineries have been performed using site-specific data and are attached in PETRORISK file - 'Site-Specific Production' worksheet. [DSU6]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 41 of 125

Section 1 Exposure Scenario Title	
Title:	
Metal working fluids / rolling oils - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC10, PROC13, PROC17, PROC2, PROC3,
	PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 1.1.v1 .ESVOC 4.7a.v1
Processes, tasks, activities covered	
Covers the use in formulated MWEs (MWEs)/rolling oils inc	luding transfer operations, rolling and annealing activities
cutting/machining activities, automated and manual applica	tion of corrosion protections (including brushing, dipping
and spraving), equipment maintenance, draining and dispo	sal of waste oils.
Section 2 Operational conditions and risk manageme	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Duration frequency and amount	
Covers daily exposures up to 8 hours (upless stated differe	ntlv/IC21
Covers percentage substance in the product up to 100 %[6	113 J
Other given operational conditions affecting workers e	vposure
Assumes a good basic standard of occupational bygiene is	implemented [C1]
Operation is carried out at elevated temperature (>20 C ab	anipiententeu [OT]
Contributing Scanarios/	
Specific Pick Management Measures and Operating Co	unditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	s ainways) relates to notential for asniration, a non-
quantifiable bazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
lif it is vomited following ingestion A DNEL cannot be derive	A Risks from the physicochemical bazards of substances
can be controlled by implementing risk management measure	res For substances classified as H304 the following
measures need to be implemented to control the aspiration	hazard
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.
General exposures (closed systems) PROC1	g.
No other specific measures identified.	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (closed systems) PROC3	
No other specific measures identified.	
General exposures (open systems) PROC4	
No other specific measures identified.	
Bulk transfers Dedicated facility PROC8b	
No other specific measures identified.	
Filling / preparation of equipment from drums or containers Dedicated facility PROC8b	
No other specific measures identified.	
Filling / preparation of equipment from drums or containers Dedicated facility PROC5	
No other specific measures identified.	
Filling / preparation of equipment from drums or contain	iners Dedicated facility PROC9
INO other specific measures identified	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 42 of 125

Process sampling PROC3
No other specific measures identified.
Metal machining operations PROC17
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Treatment by dipping and pouring PROC13
No other specific measures identified.
Spraying PROC7
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Manual Rolling, Brushing PROC10
No other specific measures identified.
Automated metal rolling/forming Use in contained systems Elevated temperature PROC2
No other specific measures identified.
Semi-automated metal rolling/forming Elevated temperature PROC17
Provide extract ventilation to points where emissions occur.
Semi-automated metal rolling/forming PROC4
No other specific measures identified.
Equipment cleaning and maintenance Dedicated facility PROC8b
Drain down system prior to equipment break-in or maintenance
Equipment cleaning and maintenance Non-dedicated facility PROC8a
Drain down system prior to equipment break-in or maintenance
Storage PROC1
Store substance within a closed system
Storage PROC2
Store substance within a closed system
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic
Predominantly hydrophobic. Substance is complex LIVCB
Predominantly hydrophobic. Substance is complex UVCB.
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Errotion of ELL tonnago used in region: 0.1
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Errotion of EU tonnage used in region: 0.1
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum deily eite tonnage (kg/d): 5000 kg / day
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Pergional use tonnage (toppage (toppage): 400 toppa/yr
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0 Release fraction to wastewater from process (initial release prior to RMM): 0.000001
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.00001 Technical conditions and measures at process level (source) to prevent release
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.000001 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to wastewater from process (initial release prior to RMM): 0.000001 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.000001 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor: [EF1] 10 Local marine water dilution factor: [EF2] 1000 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.000001 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 100 tons/yr Continuous release. Emission Days (days/year): 20 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5000 kg / day Regional use tonnage (tonnes/year): 4200 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to soil from process (initial release prior to RMM): 0.02 Release fraction to soil from process (initial release prior to RMM): 0.000001 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >= 0 %

Risk from environmental exposure is driven by



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 43 of 125

Treat air emissions to provide a typical removal (or abatement?) efficiency of: 70 % Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency of =: >= 64.5 % Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils. Prevent discharge of undissolved substance to or recover from wastewater. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 33000 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 44 of 125

Section 1 Exposure Scenario Title	
Title:	
Use as binders and release agents - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1 PROC10 PROC13 PROC14 PROC2 PROC3
	PROC4, PROC6, PROC7, PROC8a, PROC8b
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 1 1 v1 ESVOC 4 10a v1 ESVOC 8 7c v1
Processes tasks activities covered	
Covers the use as binders and release agents including ma	terial transfers, mixing, application (including spraving and
brushing) and handling of waste	action (including spraying and
Section 2 Operational conditions and risk manageme	nt moasures
Section 2.1 Control of worker exposure	
Broduct Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 nours (unless stated differe	ntiy)[G2]
Covers percentage substance in the product up to 100 %[G	i13]
Other given operational conditions affecting workers e	xposure
Assumes a good basic standard of occupational hygiene is	Implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	ed. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	Ires. For substances classified as H304, the following
measures need to be implemented to control the aspiration	nazaro.
Do not ingest. If swallowed then seek immediate medical	allention. Do NOT induce vomiting.
(Closed Systems) Material transfers PROCI	
Motorial transform (algood systems) PBOC2	
Material transfers (closed systems) PROC2	
No other specific measures identified.	
Material transfers (Closed Systems) PRUC3	
Drum/batch transfers Dedicated facility PROC8b	
No other specific measures identified	
No outer specific measures licentified. Mixing operations (closed systems) PROC3	
No other specific measures identified	
Mixing operations (open systems) PROCA	
No other specific measures identified	
Dipping, immersion and pouring PROC13	
No other specific measures identified.	
Mold forming PROC14	
No other specific measures identified.	
Casting operations (open systems) Elevated temperatu	re PROC6



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 45 of 125

No other specific measures identified.	
Spraying PROC7	
Carry out in a vented booth or extracted enclosure.	
or	
Wear a full face respirator conforming to EN140 with Type A filter or better.	
Manual Rolling, Brushing PROC10	
No other specific measures identified.	
Treatment by dipping and pouring PROC13	
No other specific measures identified.	
Equipment cleaning and maintenance PROC8a	
Drain down system prior to equipment break-in or maintenance.	
Storage PROC1	
Store substance within a closed system.	
Storage PROC2	
Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Predominantly hydrophobic.	
Substance is complex UVCB.	
Duration, frequency and amount	
Annual site tonnage (tonnes/year): 2500 tons/yr	
Continuous release.	
Emission Days (days/year): 100 days/yr	
Fraction of EU tonnage used in region: 0.1	
Fraction of Regional tonnage used Locally: 1	
Maximum daily site tonnage (kg/d): 25000 kg / day	
Regional use tonnage (tonnes/year): 3700 tons/yr	
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1] 10	
Local marine water dilution factor: [EF2] 100	
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM): 1	
Release fraction to soil from process (initial release prior to RMM): 0	
Release fraction to wastewater from process (initial release prior to RMM): 0.0000001	
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=	
0 %	
Risk from environmental exposure is driven by	
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 80 %	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency	
of =: >= 64.4 %	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Prevent discharge of undissolved substance to or recover from wastewater.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 46 of 125

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 140000 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational

Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 47 of 125

Section 1 Exposure Scenario Title	
Title:	
Use as a fuel - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC16, PROC2, PROC3, PROC8a, PROC8b
Environmental Release Categories	ERC7
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 7.12a.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive), and includes acti	vities associated with its transfer, use, equipment
maintenance and handling of waste.	
Section 2 Operational conditions and risk managemen	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	kposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	ires. For substances classified as H304, the following
measures need to be implemented to control the aspiration	nazaro.
Do not ingest. If swallowed then seek immediate medical a	attention. Do NOT induce vomiting.
Bulk transfers Dedicated facility PROC8b	
No other specific measures identified.	
Drum/batch transfers Dedicated facility PROC8b	
No other specific measures identified.	
General exposures (Closed Systems) PROU1	
General exposures (closed systems) PPOC2	
No other specific measures identified	
Use as a fuel (closed systems) PROC16	
No other specific measures identified.	
Use as a fuel (closed systems) PROC3	
No other specific measures identified.	
Equipment cleaning and maintenance PROC8a	
Drain down system prior to equipment break-in or maintenance.	
Storage PROC1	
Store substance within a closed system.	
Storage PROC2	
Store substance within a closed system.	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 48 of 125

Section 2.2 Control of environmental exposure	
Product characteristics	
Predominantly hydrophobic.	
Substance is complex UVCB.	
Duration, frequency and amount	
Annual site tonnage (tonnes/year): 46000 tons/yr	
Continuous release.	
Emission Days (days/year): 300 days/yr	
Fraction of EU tonnage used in region: 0.1	
Fraction of Regional tonnage used Locally: 1	
Maximum daily site tonnage (kg/d): 150000 kg / day	
Regional use tonnage (tonnes/year): 46000 tons/yr	
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1] 10	
Local marine water dilution factor: [EF2] 100	
Other given operational conditions affecting environmental exposure	
Release fraction to air from process (initial release prior to RMM): 0.005	
Release fraction to soil from process (initial release prior to RMM): 0	
Release fraction to wastewater from process (initial release prior to RMM): 0.00001	
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=	
0%	
Risk from environmental exposure is driven by	
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 95 %	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency	
of =: >= 76.5 %	
Organisation measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day	
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %	
Not applicable as there is no release to wastewater.	
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 670000 kg / day	
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %	
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions considered in regional exposure assessment [ETW2]	
Combustion emissions limited by required exhaust emission controls [ETW1]	
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of the substance is generated [ERW3]	
Section 3 Exposure Estimation	
3.1. Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]	
3.2. Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EF2]	
Section 4 Guidance to check compliance with the Exposure Scenario	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 49 of 125

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational

Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 50 of 125

Section 1 Exposure Scenario Title	
Title:	
Functional Fluids - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC7
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 7.13a.v1
Processes, tasks, activities covered	
Use as functional fluids e.g. cable oils, transfer oils, coolant equipment including maintenance and related material trans	s, insulators, refrigerants, hydraulic fluids in industrial ifers.
Section 2 Operational conditions and risk managemen	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differen	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ve ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
if it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard.
Do not ingest. If swallowed then seek immediate medical a	attention. Do NOT induce vomiting.
Bulk transfers (closed systems) PROC1	
No other specific measures identified.	
Bulk transfers (closed systems) PROC2	
No other specific measures identified.	
Bulk transfers (closed systems) PROC3	
No other specific measures identified.	
Drum/batch transfers Dedicated facility PROC8b	
No other specific measures identified.	
Filling of articles/equipment (closed systems) PROC9	
No other specific measures identified.	
Filling / preparation of equipment from drums or containers Non-dedicated facility PROC8a	
No other specific measures identified.	
General exposures (closed systems) PROUZ	
Ino other specific measures identified.	
Use dry break couplings for material transfer	
Dese ury preak couplings for material transfer.	
Remanufacture of reject articles PROC9	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 51 of 125

No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 10 tons/yr
Continuous release.
Emission Days (days/year): 20 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 500 kg / day
Regional use tonnage (tonnes/year): 1200 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.0005
Release fraction to soil from process (initial release prior to RMM): 0.001
Release fraction to wastewater from process (initial release prior to RMM): 0.000001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0 %
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 64.4 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Prevent discharge of undissolved substance to or recover from wastewater.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 3300 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 52 of 125

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 53 of 125

Section 1 Exposure Scenario Title	
Title:	
Use in laboratories - Industrial	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC15
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 1.1.v1
Processes, tasks, activities covered	
Use of the substance within laboratory settings, including m	aterial transfers and equipment cleaning.
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differe	ntlv)[G2]
Covers percentage substance in the product up to 100 %IG	131
Other given operational conditions affecting workers ex	posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
if it is vomited following ingestion. A DNEL cannot be derive	ed. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	Ires. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard.
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.
Laboratory activities PROC15	
No other specific measures identified.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Predominantly hydrophobic.	
Substance is complex UVCB.	
Duration, frequency and amount	
Annual site tonnage (tonnes/year): 2 tons/yr	
Continuous release.	
Emission Days (days/year): 20 days/yr	
Fraction of EU tonnage used in region: 0.1	
Fraction of Regional tonnage used Locally: 1	
jiviaximum daily site tonnage (kg/d): 100 kg / day Regional use tonnage (tonnes/vear): 1200 tons/vr	
Environmental factors not influenced by risk management	
Environmental factors not influenced by risk management	
Local marine water dilution factor: [EF1] 10	
Cother given energianal conditions offecting environment	ntol ovnoouro
other given operational conditions affecting environme	intai exposure



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 54 of 125

Release fraction to air from process (initial release prior to RMM): 0.025 Release fraction to soil from process (initial release prior to RMM): 0.001 Release fraction to wastewater from process (initial release prior to RMM): 0.02 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >= 0 % Risk from environmental exposure is driven by Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0 % Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency of =: >= 78.7 % Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 400 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 55 of 125

Section 1 Exposure Scenario Title	
Title:	
Rubber production and processing	
Use Descriptor	
Sector(s) of Use	SU10
Process Categories	PROC1, PROC13, PROC14, PROC15, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC1, ERC4, ERC6D
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.19.v1
Processes, tasks, activities covered	
Manufacture of tyres and general rubber articles, including	processing of raw (uncured) rubber, handling and mixing of
rubber additives, vulcanising, cooling and finishing.	
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	kposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Assumes use at not more than 20°C above ambient temper	ature[G15]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/ Specific Risk Management Measures and Operating Co (only required controls to demonstrate safe use listed)	nditions
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard.	
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.
(closed systems) Bulk transfers PROC1	
No other specific measures identified.	
(closed systems) Bulk transfers PROC2	
No other specific measures identified.	
Bulk transfers Dedicated facility PROC8b	
No other specific measures identified.	
Bulk weighing (closed systems) PROC1	
No other specific measures identified.	
Bulk weighing (closed systems) PROC2	
No other specific measures identified.	
Small scale weighing Dedicated facility PROC9	
No other specific measures identified.	
Additive premixing (open systems) PROC3	
No other specific measures identified. Additive promixing (open systems) PPOCA	
Additive premixing (open systems) PROC4	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 56 of 125

No other specific measures identified. Additive premixing (open systems) PROC5 No other specific measures identified. Material transfers Dedicated facility PROC8b No other specific measures identified. Material transfers Dedicated facility PROC9 No other specific measures identified. Calendering (including Banburys) Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC6 No other specific measures identified. Pressing uncured rubber blanks PROC14 No other specific measures identified. Tyre build up Spraying PROC7 Minimise exposure by extracted full enclosure for the operation or equipment. Vulcanisation Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC6 Provide extract ventilation to material transfer points and other openings. Cooling cured articles Operation is carried out at elevated temperature (> 20°C above ambient temperature). PROC6 Provide extract ventilation to points where emissions occur. Production of articles by dipping and pouring PROC13 No other specific measures identified. Finishing operations PROC21 No other specific measures identified. Laboratory activities PROC15 No other specific measures identified. Equipment cleaning and maintenance PROC8a Drain down system prior to equipment break-in or maintenance. Storage PROC1 Store substance within a closed system. Storage PROC2 Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 30000 tons/yr Continuous release. Emission Days (days/year): 300 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 100000 kg / day Regional use tonnage (tonnes/year): 44000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from process (initial release prior to RMM): 0.01 Release fraction to soil from process (initial release prior to RMM): 0.0001 Release fraction to wastewater from process (initial release prior to RMM): 0.00001 Technical conditions and measures at process level (source) to prevent release



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 57 of 125

Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >= 0%

Risk from environmental exposure is driven by

Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0 %

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency of =: >= 73.4 %

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils.

Prevent discharge of undissolved substance to or recover from wastewater.

Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 500000 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 58 of 125

Section 1 Exposure Scenario Title	
Title:	
Polymer processing - Industrial	
Use Descriptor	
Sector(s) of Use	SU10, SU3
Process Categories	PROC1, PROC13, PROC14, PROC2, PROC21, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.21a.v1
Processes, tasks, activities covered	
Processing of formulated polymers including material transf plasticisers, etc.), moulding, curing and forming activities, m	ers, additives handling (e.g. pigments, stabilisers, fillers, aterial re-works, storage and associated maintenance.
Section 2 Operational conditions and risk managemen	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	(posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
I he H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
if it is verticed following ingestion A DNEL connect he derive	lies (i.e. viscosity) that can occur during ingestion and also
In it is vomited following ingestion. A DNEL cannot be derive	u. Risks from the physicochemical hazards of substances
measures need to be implemented to control the aspiration	hazard
Do not ingest I f swallowed then seek immediate medical	attention Do NOT induce vomiting
Bulk transfers (closed systems) PROC1	allention. Do NOT induce vomiting.
No other specific measures identified	
Bulk transfers (closed systems) PROC2	
No other specific measures identified.	
Bulk transfers Dedicated facility PROC8b	
No other specific measures identified.	
Bulk weighing (closed systems) PROC1	
No other specific measures identified.	
Bulk weighing (closed systems) PROC2	
No other specific measures identified.	
Small scale weighing PROC9	
No other specific measures identified.	
Additive premixing PROC3	
No other specific measures identified.	
Additive premixing PROC4	
No other specific measures identified.	
Additive premixing PROC5	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 59 of 125

No other an article measures interstified
No other specific measures identified.
Calendering (including Banburys) Operation is carried out at elevated temperature (> 20°C above ambient
temperature). PROC6
Provide extract ventilation to material transfer points and other openings.
Production of articles by dipping and pouring PROC13
No other specific measures identified.
Extrusion and masterbatching PROC14
No other specific measures identified.
Injection moulding of articles PROC14
No other specific measures identified.
Finishing operations PROC21
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 13000 tons/yr
Continuous release.
Emission Days (days/year): 300 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 43000 kg / day
Regional use tonnage (tonnes/year): 13000 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.1
Release fraction to soil from process (initial release prior to RMM): 0.00001
Release fraction to wastewater from process (initial release prior to RMM): 0
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of 80 %
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 64.4 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils
Sludge should be incinerated, contained or reclaimed



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 60 of 125

Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 290000 kg / dav Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Risk Management Measures are based on qualitative risk characterisation. [G37] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 61 of 125

Section 1 Exposure Scenario Title	
Title:	
Water treatment chemicals - Industrial	
Use Descriptor	
Sector(s) of Use	ISU3
Process Categories	PROC1 PROC13 PROC2 PROC3 PROC4 PROC8a
	PROC8b
Environmental Release Categories	ERC3 ERC4
Specific Environmental Release Category	ESV0C 1 1 v1 ESV0C 3 22a v1
Processes tasks activities covered	
Covers the use of the substance for the treatment of water	at industrial facilities in onen and closed systems
Section 2 Operational conditions and risk manageme	nt measures
Section 2.1 Control of worker exposure	
Breduct Characteristic	
Duration, frequency and amount	11 X CO1
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]
Covers percentage substance in the product up to 100 %[C	i13]
Other given operational conditions affecting workers e	xposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	ed. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measi	Ires. For substances classified as H304, the following
measures need to be implemented to control the aspiration	nazaro.
Do not ingest. If swallowed then seek immediate medical	allention. Do NOT induce vomiting.
Buik transfers use in contained systems PROC2	
Drum/batch transfore Dedicated facility PBOC9b	
No other encoding measures identified	
General exposures (closed systems) PPOC3	
No other specific measures identified	
General exposures (open systems) PROCA	
No other specific measures identified	
Pouring from small containers PROC13	
No other specific measures identified	
Fourinment cleaning and maintenance PROC8a	
Drain down system prior to equipment break-in or maintena	ince
Storage PROC1	
Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Predominantly hydrophobic	
Substance is complex UVCB	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 62 of 125

Duration, frequency and amount
Annual site tonnage (tonnes/year): 30 tons/yr
Continuous release.
Emission Days (days/year): 300 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 100 kg / day
Regional use tonnage (tonnes/year): 3300 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.05
Release fraction to soil from process (initial release prior to RMM): 0
Release fraction to wastewater from process (initial release prior to RMM): 0.95
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
79.1 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0 %
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 98.9 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater.
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 %
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 100 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 98.9 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]
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Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 63 of 125

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 64 of 125

Section 1 Exposure Scenario Title	
Title:	
Mining chemicals	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.23.v1
Processes, tasks, activities covered	
Covers the use of the substance in extraction processes at separation activities, and substance recovery and disposal.	mining operations, including material transfers, winning and
Section 2 Operational conditions and risk managemen	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differen	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	(posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
if it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard.
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.
(closed systems) Bulk transfers PROC2	
No other specific measures identified.	
Drum/batch transfers Dedicated facility PROC8b	
No other specific measures identified.	
No other encoific measures identified	
General expecting measures (closed systems) PPOC3	
No other specific measures identified	
General exposures (open systems) PROC5	
No other specific measures identified	
nhase senaration PROC4	
No other specific measures identified	
ion exchange processes (closed systems) PROC2	
No other specific measures identified.	
Process sampling PROC3	
No other specific measures identified.	
Mixing operations (closed systems) PROC1	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 65 of 125

No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 200 tons/yr
Continuous release.
Emission Days (days/year): 20 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 10000 kg / day
Regional use tonnage (tonnes/year): 1000 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.25
Release fraction to soil from process (initial release prior to RMM): 0.05
Release fraction to wastewater from process (initial release prior to RMM): 0.5
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
82 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: 80 %
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 99 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 10000 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 99 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste
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Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 66 of 125

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 67 of 125

Section 1 Exposure Scenario Title		
Title:		
Use in Coatings - Professional		
Use Descriptor		
Sector(s) of Use	SU22	
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC15, PROC19, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b	
Environmental Release Categories	ERC8A, ERC8D	
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 8.3b.v1	
Processes, tasks, activities covered		
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation) and equipment cleaning, maintenance and associated laboratory activities.		
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated differen	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	13]	
Other given operational conditions affecting workers ex	posure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk Management Measures and Operating Co	nditions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard) The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard. Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting. Filling / preparation of equipment from drums or containers Dedicated facility PROC8b		
General exposures (closed systems) PROC1		
No other specific measures identified		
General exposures (closed systems) PROC2		
No other specific measures identified.		
Preparation of material for application Mixing operation	s (closed systems) PROC3	
No other specific measures identified.		
Film formation - air drying Outdoor. PROC4		
No other specific measures identified.		
Film formation - air drying Indoor PROC4		
No other specific measures identified.		
Preparation of material for application Indoor Mixing operations (open systems) Pouring from small containers PROC5		
No other specific measures identified.		
•		



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 68 of 125

Preparation of material for application Outdoor. Mixing operations (open systems) Pouring from small
Containers PROC5
No other specific measures identified.
Material transfers Drum/batch transfers Non-dedicated facility PROC8a
Use drum pumps.
Roller, spreader, flow application Indoor PROC10
No other specific measures identified.
Roller, spreader, flow application Outdoor. PROC10
No other specific measures identified.
Spraying/fogging by manual application Indoor PROC11
Carry out in a vented booth or extracted enclosure.
Spraying/fogging by manual application Outdoor. PROC11
Wear a respirator conforming to EN140 with Type A filter or better.
Dipping, immersion and pouring Indoor PROC13
No other specific measures identified.
Dipping, immersion and pouring Outdoor. PROC13
No other specific measures identified.
Laboratory activities PROC15
No other specific measures identified.
Hand application - finger paints, pastels, adhesives Indoor PROC19
No other specific measures identified.
Hand application - finger paints, pastels, adhesives Outdoor. PROC19
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Store substance within a closed system. Section 2.2 Control of environmental exposure
Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics
Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic.
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Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1
Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1
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Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5.4 kg / day Regional use tonnage (tonnes/year): 3900 tons/yr Environmental factors not influenced by risk management
Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5.4 kg / day Regional use tonnage (tonnes/year): 3900 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1]
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Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5.4 kg / day Regional use tonnage (tonnes/year): 3900 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.98 Release fraction to soil from wide dispersive use (regional only): 0.01
Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5.4 kg / day Regional use tonnage (tonnes/year): 3900 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.98 Release fraction to soil from wide dispersive use: 0.01
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Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5.4 kg / day Regional use tonnage (tonnes/year): 3900 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.98 Release fraction to soil from wide dispersive use: 0.01 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used.
Store substance within a closed system. Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 2 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 5.4 kg / day Regional use tonnage (tonnes/year): 3900 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.98 Release fraction to soil from wide dispersive use: 0.01 Technical conditions and measures at process level (source) to prevent release Common practices vary across sites thus conservative process release estimates used. Technical conditions and measures to reduce or limit discharges, air emissions and releases to soil



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 69 of 125

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >= 0 %

Risk from environmental exposure is driven by

Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency of =: >= 65 %

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils.

Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 35 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation

24 Health

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 70 of 125

Title:	
Use in Cleaning Agents - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC19, PROC2,
	PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 1.1.v1.ESVOC 4.4a.v1.ESVOC 8.4b.v1
Processes, tasks, activities covered	
Covers the use as a component of cleaning products includ	ling pouring/unloading from drums or containers: and
exposures during mixing/diluting in the preparatory phase a	ind cleaning activities (including spraving brushing dipping
wiping automated and by hand)	
Section 2 Operational conditions and risk manageme	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Duration frequency and amount	
Covers doily experience up to 8 hours (upless stated differen	
Covers daily exposures up to a hours (unless stated difference)	1111y)[62]
Covers percentage substance in the product up to 100 %[0	
Other given operational conditions affecting workers e	kposure
Assumes a good basic standard of occupational hygiene is	
Operation is carried out at elevated temperature (>20 C ab	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk management measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-	
tifishish shared determined have been a share is a shar	s airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	airways) relates to potential for aspiration, a non- ties (i.e. viscosity) that can occur during ingestion and also
quantifiable hazard determined by physico-chemical proper if it is vomited following ingestion. A DNEL cannot be derive	a airways) relates to potential for aspiration, a non- ties (i.e. viscosity) that can occur during ingestion and also ed. Risks from the physicochemical hazards of substances
quantifiable hazard determined by physico-chemical proper if it is vomited following ingestion. A DNEL cannot be derive can be controlled by implementing risk management measures	a airways) relates to potential for aspiration, a non- ties (i.e. viscosity) that can occur during ingestion and also ed. Risks from the physicochemical hazards of substances ures. For substances classified as H304, the following
quantifiable hazard determined by physico-chemical proper if it is vomited following ingestion. A DNEL cannot be derive can be controlled by implementing risk management measures measures need to be implemented to control the aspiration	a airways) relates to potential for aspiration, a non- ties (i.e. viscosity) that can occur during ingestion and also ed. Risks from the physicochemical hazards of substances ures. For substances classified as H304, the following hazard.
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Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 71 of 125

Cleaning with high pressure washers Spraying Indoor PROC11
No other specific measures identified.
Cleaning with high pressure washers Spraying Outdoor. PROC11
No other specific measures identified.
Manual Surfaces Cleaning Wiping Rolling, Brushing PROC10
No other specific measures identified.
Degreasing small objects in cleaning station PROC10
No other specific measures identified.
Ad hoc manual application via trigger sprays, dipping, etc. PROC10
No other specific measures identified.
Cleaning of medical devices PROC4
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 2 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 5.3 kg / day
Regional use tonnage (tonnes/year): 3900 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.02
Release fraction to soil from wide dispersive use (regional only): 0
Release fraction to wastewater from wide dispersive use: 0.000001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0%
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 64.4 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/dav



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 72 of 125

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 36 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational

Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.


Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 73 of 125

Section 1 Exposure Scenario Title	
Title:	
Use in oil field drilling and production operations - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC8D
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.5a.v1
Processes, tasks, activities covered	
Oil field well drilling operations (including drilling muds and	well cleaning) including material transfers, on-site
formulation, well head operations, shaker room activities an	d related maintenance.
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	kposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Assumes use at not more than 20°C above ambient temper	ature[G15]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	Ires. For substances classified as H304, the following
De net ingest I fewellowed then each immediate medical	Nazaru.
Bulk transfors Dedicated facility PPOC9b	
No other specific measures identified	
Filling / preparation of equipment from drums or contai	ners Dedicated facility PROC8b
No other specific measures identified	
Drilling mud (re-)formulation Use in contained batch processes PROC3	
No other specific measures identified	
Drill floor operations PROC4	
No other specific measures identified.	
Elevated temperature Operation of solids filtering equipment - aerosol exposures PROC4	
Provide the operation with a properly sited receiving hood.	
Cleaning of solids filtering equipment Non-dedicated facility PROC8a	
Provide extract ventilation to points where emissions occur.	
Treatment and disposal of filtered solids Use in contained batch processes PROC3	
No other specific measures identified.	
Process sampling PROC3	
No other specific measures identified.	
General exposures (closed systems) PROU1	
INO OTHER SPECIFIC MEASURES IDENTIFIED.	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 74 of 125

Pouring from small containers Non-dedicated facility PROC8a	
Carefully pour from containers.	
General exposures (open systems) PROC4	
No other specific measures identified.	
Equipment cleaning and maintenance PROC8a	
Drain down system prior to equipment break-in or maintenance.	
General exposures (closed systems) PROC1	
No other specific measures identified.	
General exposures (closed systems) PROC2	
No other specific measures identified.	
Storage PROC1	
Store substance within a closed system.	
Storage PROC2	
Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Predominantly hydrophobic.	
Substance is complex UVCB.	
Duration, frequency and amount	
Annual site tonnage (tonnes/year): Not Applicable	
Emission Days (days/year): Not Applicable	
Fraction of EU tonnage used in region: 1	
Fraction of Regional tonnage used Locally. Not Applicable	
Maximum daily site tonnage (kg/d): Not Applicable	
Regional use tonnage (tonnes/vear): 10 tons/vr	
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1] Not Applicable	
Local marine water dilution factor: [EF2] Not Applicable	
Other given operational conditions affecting environmental exposure	
Release fraction to air from wide dispersive use (regional only): Not Applicable	
Release fraction to wastewater from wide dispersive use: Not Applicable	
Technical conditions and measures at process level (source) to prevent release	
Discharge to aquatic environment is restricted (see Section 4.2) [TCS2]	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =:	
Not Applicable	
I reat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable	
I reat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency	
of =: Not Applicable	
Organisation measures to prevent/limit release from site	
Not applicable	
Conditions and measures related to municipal sewage treatment plant	
Assumed domestic sewage treatment plant effluent flow is:[STP5] Not Applicable	
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: Not Applicable	
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: Not	
Applicable	
Conditions and measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 75 of 125

Section 3 Exposure Estimation

3.1. Health

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.[G8]

3.2. Environment

Qualitative approach used to conclude safe use [EE8]

Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment [EE7]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Discharge to aquatic environment is restricted by law and industry prohibits release [DSU9]



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 76 of 125

Section 1 Exposure Scenario Title	
Title:	
Lubricants - Professional (Low Release)	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC17, PROC18, PROC2, PROC20, PROC3, PROC4, PROC8a,
	PROC8b, PROC9
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 8.6c.v1 ,ESVOC 9.6b.v1
Processes, tasks, activities covered	
Covers the use of formulated lubricants in closed and open	systems including transfer operations, operation of engines
and similar articles, reworking on reject articles, equipment	maintenance and disposal of waste oil.
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differe	ntlv)[G2]
Covers percentage substance in the product up to 100 %[G	131
Other given operational conditions affecting workers ex	posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
if it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard.
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.
General exposures (closed systems) PROC1	
No other specific measures identified.	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (closed systems) PROC3	
No other specific measures identified.	
Operation of equipment containing engine oils and similar (closed systems) PROC20	
No other specific measures identified.	
General exposures (open systems) PROC4	
No other specific measures identified.	
Bulk transfers Dedicated facility PROC8b	
No other specific measures identified.	
Initing / preparation of equipment from drums or containers Dedicated facility PRUC8D	
INO Other specific measures identified.	
Avoid carrying out activities involving exposure for more than 1 hour	
Avoid carrying out activities involving exposure for more than 1 hour.	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 77 of 125

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	
Minimise expective by partial enclosure of the operation or equipment and provide extract ventilation at energings	
Operation and lubrication of high operation on equipment Outdoor, PROC17	
Ensure operation is undertaken outdoors	
Avoid correction for more than 4 hours	
Limit the substance content in the mixture to 25 %	
Limit the substance content in the mixture to 25 %.	
maintenance (of larger plant items) and machine set up bedicated facility Elevated temperature PROCob	
Drain down system prior to equipment break-in or maintenance.	
Provide extract ventilation to emission points when contact with warm (> 50°C) lubricant is likely.	
maintenance of small items Non-dedicated facility Elevated temperature PROC8a	
Drain of remove substance from equipment prior to break-in of maintenance.	
provide a good standard of general ventilation (not less than 3 to 5 air changes per nour).	
Engine lubricant service PROC9	
No other specific measures identified.	
Manual Rolling, Brusning PROC10	
No other specific measures identified.	
Spraying PROC11	
Carry out in a vented booth or extracted enclosure.	
Or Minimize surgesting the experimental and the experimental and the street contilation of experiment	
Minimise exposure by partial enclosure of the operation of equipment and provide extract ventilation at openings.	
Avoid carrying out activities involving exposure for more than 1 hour.	
UK Maar a reanizator conferming to EN140 with Tune A filter or better	
Treatment by display and neuring DOO12	
I reatment by dipping and pouring PROC13	
No other specific measures identified.	
Storage PROUT	
Store substance within a closed system.	
Castion 2.2. Control of any ironmantal averagive	
Section 2.2 Control of environmental exposure	
Section 2.2 Control of environmental exposure Product characteristics Device the sector of the secto	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic.	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB.	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release.	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1]	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.01 0.01	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.01 Release fraction to soil from wide dispersive use (regional only): 0.01	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.01 Release fraction to soil from wide dispersive use: 0.01	
Section 2.2 Control of environmental exposure Product characteristics Predominantly hydrophobic. Substance is complex UVCB. Duration, frequency and amount Annual site tonnage (tonnes/year): 53 tons/yr Continuous release. Emission Days (days/year): 365 days/yr Fraction of EU tonnage used in region: 0.1 Fraction of Regional tonnage used Locally: 1 Maximum daily site tonnage (kg/d): 365 kg / day Regional use tonnage (tonnes/year): 110000 tons/yr Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100 Other given operational conditions affecting environmental exposure Release fraction to air from wide dispersive use (regional only): 0.01 Release fraction to soil from wide dispersive use: 0.01 Technical conditions and measures at process level (source) to prevent release	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 78 of 125

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 76.1 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 650 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]
Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational
Conditions outlined in Section 2 are implemented. [G22]
Risk Management Measures are based on qualitative risk characterisation. [G37]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are
managed to at least equivalent levels.[G23]
4.2. Environment
Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 79 of 125

Section 1 Exposure Scenario Title	
Title:	
Lubricants - Professional (High Release)	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC17, PROC18, PROC2, PROC20, PROC3, PROC4, PROC8a,
	PROC8b, PROC9
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.7a.v1 ,ESVOC 8.6c.v1 ,ESVOC
	9.6b.v1
Processes, tasks, activities covered	
Covers the use of formulated lubricants in closed and open	systems including transfer operations, operation of engines
and similar articles, reworking on reject articles, equipment	maintenance and disposal of waste oil.
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	kposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	ainvoya) valates to notential far conjustion of non
The H304 lisk phrase (May be latal if swallowed and enters	tion (i.e. vienesity) that can accur during ingestion and also
if it is venited following ingestion A DNEL connect be derived	lies (i.e. viscosity) that can occur during ingestion and also
In it is volutied following ingestion. A DNEL calling be derive	use. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard
Do not ingest If swallowed then seek immediate medical	attention Do NOT induce vomiting
General exposures (closed systems) PROC1	allenden. De Nor induce vormang.
No other specific measures identified.	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (closed systems) PROC3	
No other specific measures identified.	
Operation of equipment containing engine oils and sim	ilar (closed systems) PROC20
No other specific measures identified.	
General exposures (open systems) PROC4	
No other specific measures identified.	
Bulk transfers Dedicated facility PROC8b	
No other specific measures identified.	
Filling / preparation of equipment from drums or containers Dedicated facility PROC8b	
No other specific measures identified.	
Filling / preparation of equipment from drums or contain	ners Non-dedicated facility PRUC8a



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 80 of 125

Avoid carrying out activities involving exposure for more than 1 hour.
Operation and lubrication of high energy open equipment Indoor PROC17
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Operation and lubrication of high energy open equipment Indoor PROC18
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Operation and lubrication of high energy open equipment Outdoor. PROC17
Ensure operation is undertaken outdoors.
Avoid carrying out operation for more than 4 hours.
Limit the substance content in the mixture to 25 %.
Maintenance (of larger plant items) and machine set up Dedicated facility Elevated temperature PROC8b Drain down system prior to equipment break-in or maintenance.
Provide extract ventilation to emission points when contact with warm (> 50°C) lubricant is likely.
Maintenance of small items Non-dedicated facility Elevated temperature PROC8a
Drain or remove substance from equipment prior to break-in or maintenance.
provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Engine lubricant service PROC9
No other specific measures identified.
Manual Rolling, Brushing PROC10
No other specific measures identified.
Spraving PROC11
Carry out in a vented booth or extracted enclosure
or
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Avoid carrying out activities involving exposure for more than 1 hour.
OR
Wear a respirator conforming to EN140 with Type A filter or better.
Treatment by dipping and pouring PROC13
No other specific measures identified.
Storage PROC1
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/vear): 40 tons/vr
Continuous release.
Emission Days (days/vear): 365 days/vr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 110 kg / day
Regional use tonnage (tonnes/vear): 81000 tons/vr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0 005
Release fraction to soil from wide dispersive use (regional only): 0.05
Release fraction to wastewater from wide dispersive use: 0.05
Technical conditions and measures at process level (source) to prevent release



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 81 of 125

Common practices vary across sites thus conservative process release estimates used. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >= 0 % Risk from environmental exposure is driven by Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency of =: >= 87.6 % Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 260 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section **3 Exposure Estimation** 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Risk Management Measures are based on qualitative risk characterisation. [G37] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23] 4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 82 of 125

Section 1 Exposure Scenario Title	
Title:	
Metal working fluids / rolling oils - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC17, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.7a.v1 ,ESVOC 8.7c.v1
Processes, tasks, activities covered	
Covers the use in formulated MWFs (MWFs) including trans activities, automated and manual application of corrosion pr articles, and disposal of waste oils.	fer operations, open and contained cutting/machining otections, draining and working on contaminated/ reject
Section 2 Operational conditions and risk managemen	it measures
Breduct Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differen	10)[G2]
Covers percentage substance in the product up to 100 %[G	
Other given operational conditions affecting workers ex	posure
Assumes a good basic standard of occupational hygiene is	Implemented [GT]
Contributing Secondial elevated temperature (>20 C abo	
Specific Pick Management Measures and Operating Co	aditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following	
measures need to be implemented to control the aspiration hazard.	
General exposures (closed systems) PROC1	
No other specific measures identified	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (closed systems) PROC3 No other specific measures identified. Bulk transfers Dedicated facility PROC8b	
No other specific measures identified.	
rining / preparation of equipment from drums or containers Dedicated facility PROU8D	
Filling / preparation of equipment from drums or containers Non-dedicated facility PROC8a	
Avoid carrying out activities involving exposure for more than 1 hour.	
Process sampling PROC8b	
No other specific measures identified.	
Metal machining operations PROC17	
provide a good standard of controlled ventilation (10 to 15 a	ir changes per hour).



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 83 of 125

Avoid carrying out activities involving exposure for more than 4 hours.
Limit the substance content in the mixture to 25 %.
Manual Rolling, Brushing PROC10
No other specific measures identified.
Spraying PROC11
Avoid carrying out activities involving exposure for more than 1 hour.
provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
or
Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Treatment by dipping and pouring PROC13
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 0.45 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 1.2 kg / day
Regional use tonnage (tonnes/year): 900 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.005
Release fraction to soil from wide dispersive use (regional only): 0.05
Release fraction to wastewater from wide dispersive use: 0.05
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required
If discharging to domestic sewage treatment plant, no onsite wastewater reduined.
n discharging to domestic sewage treatment plant, provide the required onsite wastewater removal emeterby or
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of = > = 65.1 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils
Sludge should be incinerated, contained or reclaimed
Conditions and measures related to municipal sowage treatment plant
conultions and measures related to municipal sewage treatment plant



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 84 of 125

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 8.1 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 85 of 125

Section 1 Exposure Scenario Title	
Title:	
Use as binders and release agents - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC14, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 4.10a.v1 ,ESVOC 8.10b.v1 ,ESVOC 8.7c.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including ma	terial transfers, mixing, application by spraying, brushing,
and handling of waste.	
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	kposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	ed. Risks from the physicochemical hazards of substances
can be controlled by implementing lisk management measures	hezerd
Do not indest If swallowed then seek immediate medical	attention Do NOT induce vomiting
(closed systems) Material transfors PROC1	
No other specific measures identified	
Material transfers (closed systems) PROC2	
No other specific measures identified.	
Material transfers (closed systems) PROC3	
No other specific measures identified.	
Drum/batch transfers Dedicated facility PROC8b	
No other specific measures identified.	
Drum/batch transfers Non-dedicated facility PROC8a	
Avoid carrying out activities involving exposure for more that	in 1 hour.
Mixing operations (closed systems) PROC3	
No other specific measures identified.	
Mixing operations (open systems) PROC4	
No other specific measures identified.	
Mola torming PRUC14	
no other specific measures identified.	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 86 of 125

Casting operations (open systems) Elevated temperature PROC6
Provide extract ventilation to points where emissions occur.
Spraying Machine PROC11
Avoid carrying out activities involving exposure for more than 4 hours. Spraying Manual PROC11
provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Avoid carrying out activities involving exposure for more than 1 hour.
or
Wear a respirator conforming to EN140 with Type A filter or better.
Manual Rolling, Brushing PROC10
No other specific measures identified.
Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 1.3 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 3.7 kg / day
Regional use tonnage (tonnes/year): 2700 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.95
Release fraction to soil from wide dispersive use (regional only): 0.025
Release fraction to wastewater from wide dispersive use: 0.025
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0%
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 65.5 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 87 of 125

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 24 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 88 of 125

Section 1 Exposure Scenario Title	
Title:	
Agrochemical uses - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC11, PROC13, PROC2, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 8.11a.v1
Processes, tasks, activities covered	
Use as an agrochemical excipient for application by manual equipment clean-downs and disposal.	or machine spraying, smokes and fogging; including
Section 2 Operational conditions and risk managemer	it measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differen	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	cposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard. Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting. Transfer from/pouring from containers Dedicated facility PROC8b	
No other specific measures identified.	
Mixing operations (open systems) PROC4	
Spraving/fogging by manual application PROC11	
Wear a respirator conforming to FN140 with Type A filter or	better
Spraving/fogging by machine application PROC11	
Apply within a vented cab supplied with filtered air under po	sitive pressure and with a protection factor of >20
Ad hoc manual application via trigger sprays dipping	etc. PROC13
No other specific measures identified	
Equipment cleaning and maintenance PROC8a	
Drain down system prior to equipment break-in or maintenance.	
Storage PROC1	
Store substance within a closed system.	
Storage PROC2	
Store substance within a closed system.	
Section 2.2 Control of environmental exposure	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 89 of 125

Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 15 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 41 kg / day
Regional use tonnage (tonnes/year): 7500 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.9
Release fraction to soil from wide dispersive use (regional only): 0.09
Release fraction to wastewater from wide dispersive use: 0.01
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 68.7 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 240 kg / day
Total enciency of removal from wastewater after onsite and offsite (domestic treatment plant) Rivivis is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [E1W3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
5.1. Realth The EVETON TDA tool has been used to estimate used aless survey and the state of the
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 90 of 125

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 91 of 125

Section 1 Exposure Scenario Title	
Title:	
Use as a fuel - Professional	
Use Descriptor	
Sector(s) of Use SU22	
Process Categories PROC1, PROC16, PROC2, PROC3, PROC8a, PROC	8b
Environmental Release Categories ERC9A, ERC9B	
Specific Environmental Release Category ESVOC 1.1.v1 ,ESVOC 9.12b.v1	
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment	
maintenance and handling of waste.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Operation is carried out at elevated temperature (>20 C above ambient temperature)[OC7]	
Contributing Scenarios/	
Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard) The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and a if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substand can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard. Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting. Bulk transfers Dedicated facility PROC3b No other specific measures identified. Drum/batch transfers Dedicated facility PROC3b No other specific measures identified. General exposures (closed systems) PROC1 No other specific measures identified. General exposures (closed systems) PROC2 No other specific measures identified. General exposures (closed systems) PROC3 Dimit the substance content in the mixture to 5 %. Equipment cleaning and maintenance PROC8a Drain down system prior to equipment break-in or maintenance. Storage PROC1	lso ices J
Store substance within a closed system.	
Product characteristics	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 92 of 125

Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 10 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 27 kg / day
Regional use tonnage (tonnes/year): 20000 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.0001
Release fraction to soil from wide dispersive use (regional only): 0.00001
Release fraction to wastewater from wide dispersive use: 0.00001
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0 %
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of:
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 64.4 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 180 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
Combustion emissions considered in regional exposure assessment [ETW2]
Combustion emissions limited by required exhaust emission controls [ETW1]
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
This substance is consumed during use and no waste of the substance is generated [ERW3]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 93 of 125

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 94 of 125

Section 1 Exposure Scenario Title	
Title:	
Functional Fluids - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC20, PROC3, PROC8a, PROC9
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 9.13b.v1
Processes, tasks, activities covered	
Use as functional fluids e.g. cable oils, transfer oils, insulato	rs, refrigerants, hydraulic fluids in closed professional
equipment including incidental exposures during maintenan	ce and related material transfers.
Section 2 Operational conditions and risk managemen	it measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differer	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ve ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Con	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical propert	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	a. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
Do not ingost If swallowed then sook immediate medical	ndzdiu.
Drum/batch transfors Non-dodicated facility PPOC8a	allention. Do NOT induce vorniting.
Use drum numps	
Transfer from/pouring from containers PROC9	
No other specific measures identified.	
Filling / preparation of equipment from drums or contain	ners PROC9
No other specific measures identified.	
Operation of equipment containing engine oils and simi	lar (closed systems) PROC1
No other specific measures identified.	· · · ·
(closed systems) Operation of equipment containing en	gine oils and similar PROC2
No other specific measures identified.	
(closed systems) Operation of equipment containing en	gine oils and similar PROC3
No other specific measures identified.	
(closed systems) Operation of equipment containing en	gine oils and similar PROC20
No other specific measures identified.	ning sile and similar Flourts it to many time PDC 000
(closed systems) Operation of equipment containing en	gine oils and similar Elevated temperature PROC20
No other specific measures identified.	
No other specific measures identified	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 95 of 125

Equipment cleaning and maintenance PROC8a
Drain down system prior to equipment break-in or maintenance.
Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 0.6 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 1.6 kg / day
Regional use tonnage (tonnes/year): 1200 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.05
Release fraction to soil from wide dispersive use (regional only): 0.025
Release fraction to wastewater from wide dispersive use: 0.025
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 64.9 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [FRW1]
Section 3 Exposure Estimation
31 Health
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Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 96 of 125

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 97 of 125

Section 1 Exposure Scenario Title	
Title:	
Road and construction applications	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC10, PROC11, PROC13, PROC2, PROC8a, PROC8b, PROC9
Environmental Release Categories	ERC8D, ERC8F
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 8.11a.v1 ,ESVOC 8.15.v1
Processes, tasks, activities covered	
Bulk loading (including marine vessel/barge, rail/road car ar	nd IBC loading)
Section 2 Operational conditions and risk managemen	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	cposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non- quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also if it is vomited following ingestion. A DNEL cannot be derived. Risks from the physicochemical hazards of substances can be controlled by implementing risk management measures. For substances classified as H304, the following measures need to be implemented to control the aspiration hazard. Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting. Drum/batch transfers Non-dedicated facility PROC8a	
Use drum pumps.	
Drum/batch transfers Dedicated facility PROC8b	
No other specific measures identified.	
Small scale weighing Rolling, Brushing PROC10	
No other specific measures identified.	
Rolling, Brusning PROC10	
No other specific measures identified.	
Spraying/fogging by machine application PROC11	
Minimise exposure by partial enclosure of the operation of e	equipment and provide extract ventilation at openings.
Ensure operation is undertaken outdoors.	
UNANT a respirator conforming to EN140 with Type A/P2 filte	r or bottor
Dipping, immersion and pouring PROC13	TOT Detter.
No other specific measures identified	
Equipment cleaning and maintenance PROC8a	
Drain down system prior to equipment break-in or maintena	nce.
Storage PROC1	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 98 of 125

Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 1.4 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 3.8 kg / day
Regional use tonnage (tonnes/year): 2800 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.95
Release fraction to soil from wide dispersive use (regional only): 0.04
Release fraction to wastewater from wide dispersive use: 0.01
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
Risk from environmental exposure is driven by
I reat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
i reat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
01 =: >= 64.9 %
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Siudge should be incinerated, contained of reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant enluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
The maximum allowable site tennage (MSafe) based on demostic sewage plant offluent release is: 25 kg / day
The maximum allowable site tormage (MSale) based on domestic sewage plant endernineliase is. 25 kg / day
Conditions and measures related to external treatment of wests for dispessel
Evidence the second disposed of wests should examine with explicitly lead and/or national regulations (ETM/2)
External treatment and disposal of waste should comply with applicable local and/or fiational regulations [ETW3]
Conditions and medsules related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 99 of 125

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 100 of 125

Section 1 Exposure Scenario Title	
Title:	
Use in laboratories - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC15
Environmental Release Categories	
Specific Environmental Release Category	ESVOC 1.1.v1
Processes, tasks, activities covered	
Use of small quantities within laboratory settings, including	material transfers and equipment cleaning.
Section 2 Operational conditions and risk management	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	313]
Other given operational conditions affecting workers ea	xposure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	ed. Risks from the physicochemical nazards of substances
measures need to be implemented to control the conjustion	bezerd
Do not ingest If swallowed then seek immediate medical	attention Do NOT induce vomiting
Laboratory activities PROC15	allendon. Do NOT induce vornling.
No other specific measures identified	
Section 2.2 Control of environmental exposure	
Product characteristics	
Predominantly hydrophobic	
Substance is complex UVCB.	
Duration, frequency and amount	
Annual site tonnage (tonnes/year): 0.6 tons/yr	
Continuous release.	
Emission Days (days/year): 365 days/yr	
Fraction of EU tonnage used in region: 0.1	
Fraction of Regional tonnage used Locally: 1	
Maximum daily site tonnage (kg/d): 1.6 kg / day	
Regional use tonnage (tonnes/year): 1200 tons/yr	
Environmental factors not influenced by risk managem	ent
Local freshwater dilution factor [EF1] 10	
Local marine water dilution factor: [EF2] 100	
Other given operational conditions affecting environme	ental exposure



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 101 of 125

Release fraction to air from wide dispersive use (regional only): 0.5 Release fraction to soil from wide dispersive use (regional only): 0

Release fraction to wastewater from wide dispersive use: 0.5

Technical conditions and measures at process level (source) to prevent release

Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >= 0 %

Risk from environmental exposure is driven by

Treat air emissions to provide a typical removal (or abatement?) efficiency of: 0 %

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency of =: >= 72.1 %

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils.

Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 8.6 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %

Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 102 of 125

Section 1 Exposure Scenario Title	
Title:	
Explosives manufacture & use	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b
Environmental Release Categories	ERC8E
Specific Environmental Release Category	ESVOC 1.1.v1
Processes, tasks, activities covered	
Covers exposures arising from the manufacture and use of	slurry explosives (including materials transfer, mixing and
charging) and equipment cleaning.	
Section 2 Operational conditions and risk managemen	nt measures
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
if it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
measures need to be implemented to control the aspiration	hazard.
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.
Bulk transfers Use in contained batch processes PROC	3
No other specific measures identified.	
Drum/batch transfers Non-dedicated facility PROC8a	
Use drum pumps.	
Mixing operations (closed systems) PROC3	
No other specific measures identified.	
Mixing operations (open systems) PROC5	
No other specific measures identified.	
Material transfers Non-dedicated facility PROC8a	
Ensure operation is undertaken outdoors.	
Avoid carrying out activities involving exposure for more that	n 4 nours.
Fransfer from/pouring from containers Non-dedicated f	acility PROCoa
Ensure operation is undertaken outdoors.	n 4 hours
Equipment cleaning and maintenance PBOC%	11 4 110u15.
Equipment cleaning and maintenance PROUSa	200
Equipment cleaning and maintenance PPOC8b	
Drain down system prior to equipment break in or maintene	nce
Drain down system phor to equipment break-in or maintena	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 103 of 125

Storage PROC1
Store substance within a closed system.
Storage PROC2
Store substance within a closed system.
Section 2.2 Control of environmental exposure
Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 0.84 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 2.3 kg / day
Regional use tonnage (tonnes/year): 1700 tons/yr
Environmental factors not influenced by risk management
Local treshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.001
Release fraction to soli from wide dispersive use (regional only): 0.01
Release fraction to wastewater from wide dispersive use: 0.02
lechnical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soll
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
U % Disk from anvironmental evenesure is driven by
Treat air omissions to provide a typical removal (or abatement2) officiency of Not Applicable
Treat an emissions to provide a typical removal (or abatement?) enciency of. Not Applicable Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of $=: >= 65\%$
Organisation measures to provent/limit release from site
Do not apply industrial sludge to natural soils
Sludge should be incinerated, contained or reclaimed
Conditions and measures related to municipal sowage treatment plant
Assumed demostic sources treatment plant offluent flow is:[STD5] 2000 m2/day
Estimated substance removal from wastewater via demostic sewage treatment is: 04.7 %
Not applicable as there is no release to wastewater
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 15 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [FTW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations (FRW/1)
Section 3 Exposure Estimation
3.1 Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [C21]
3 2 Environment



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 104 of 125

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 105 of 125

Section 1 Exposure Scenario Title	
Title:	
Polymer processing - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC14, PROC2, PROC21, PROC6, PROC8a,
	PROC8b
Environmental Release Categories	FRC8A, FRC8D
Specific Environmental Release Category	ESVOC 1 1 v1 ESVOC 8 21b v1
Processes tasks activities covered	
Processing of formulated polymers including material transf	ers moulding and forming activities material re-works and
associated maintenance	ers, moduling and forming activities, matchaine-works and
Section 2 Operational conditions and risk management	nt massuras
Section 2.1 Control of worker exposure	
Broduct Characteristic	
Liquid	
Duration, frequency and amount	-#->[O0]
Covers daily exposures up to 8 nours (unless stated differen	10)[G2]
Covers percentage substance in the product up to 100 %[G	13]
Other given operational conditions affecting workers ex	(posure
Assumes a good basic standard of occupational hygiene is	implemented [G1]
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]
Contributing Scenarios/	
Specific Risk Management Measures and Operating Co	nditions
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also
If it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances
can be controlled by implementing risk management measu	res. For substances classified as H304, the following
measures need to be implemented to control the aspiration	nazard.
Do not ingest. If swallowed then seek immediate medical a	attention. Do NOT induce vomiting.
Buik transfers (closed systems) PROC1	
No other specific measures identified.	
Bulk transfers (closed systems) PROC2	
No other specific measures identified.	
Material transfers Dedicated facility PROC80	
Initiation moulding of articles PROC14	
No other opeoific measures identified	
No other specific measures identified.	
Ne other opegific monoures identified	
Fauinment elegning and maintenance PPOC%	
Drain down system prior to achimment broak in or maintene	nce
Storage PROC1	
Store substance within a closed system	
Storage PROC2	
Store substance within a closed system	
Section 2.2 Control of anyironmental expectine	
Section 2.2 Control of environmental exposure	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 106 of 125

Product characteristics
Predominantly hydrophobic.
Substance is complex UVCB.
Duration, frequency and amount
Annual site tonnage (tonnes/year): 1.5 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 4.1 kg / day
Regional use tonnage (tonnes/year): 3000 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.98
Release fraction to soil from wide dispersive use (regional only): 0.01
Release fraction to wastewater from wide dispersive use: 0.01
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0%
Risk from environmental exposure is driven by
I reat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
of responsible wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
01 04.9 %
De net apply industrial aludge to netural soils
Du hot apply industrial sludge to natural solls. Sludge should be inciperated, contained or reclaimed
Conditions and measures related to municipal sewage treatment plant
Assumed demostic sewage treatment plant offluent flow is:[STD5] 2000 m2/day
Estimated substance removal from wastewater via domestic sewage treatment is: 04.7 %
Not applicable as there is no release to wastewater
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 27 kg / day
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [FTW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model IEE2
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available nazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 107 of 125

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 108 of 125

Section 1 Exposure Scenario Title	
Title:	
Water treatment chemicals - Professional	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC13, PROC2, PROC3, PROC4, PROC8a,
	PROC8b
Environmental Release Categories	ERC8F
Specific Environmental Release Category	ESVOC 1.1.v1 ,ESVOC 8.22b.v1
Processes, tasks, activities covered	
Covers the use of the substance for the treatment of water in open and closed systems.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers as	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Operation is carried out at elevated temperature (>20 C above ambient temperature)[OC7]	
Contributing Scenarios/	
Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
General measures (Aspiration Hazard)	
The H304 risk phrase (May be fatal if swallowed and enters airways) relates to potential for aspiration, a non-	
quantifiable hazard determined by physico-chemical properties (i.e. viscosity) that can occur during ingestion and also	
lif it is vomited following ingestion A DNFL cannot be derived Risks from the physicochemical bazards of substances	
can be controlled by implementing risk management measures For substances classified as H304, the following	
measures need to be implemented to control the aspiration hazard.	
Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting.	
Drum/batch transfers Dedicated facility PROC8b	
No other specific measures identified.	
General exposures (closed systems) PROC2	
No other specific measures identified.	
General exposures (closed systems) PROC3	
No other specific measures identified.	
General exposures (open systems) PROC4	
No other specific measures identified.	
Pouring from small containers PROC13	
No other specific measures identified.	
Equipment cleaning and maintenance PROC8a	
Drain down system prior to equipment break-in or maintenance.	
Storage PROC1	
Store substance within a closed system.	
Section 2.2 Control of environmental exposure	
Product characteristics	
Predominantly hydrophobic.	
Substance is complex UVCB.	


Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 109 of 125

Duration, frequency and amount
Annual site tonnage (tonnes/year): 1.5 tons/yr
Continuous release.
Emission Days (days/year): 365 days/yr
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used Locally: 1
Maximum daily site tonnage (kg/d): 4 kg / day
Regional use tonnage (tonnes/year): 1700 tons/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only): 0.01
Release fraction to soil from wide dispersive use (regional only): 0
Release fraction to wastewater from wide dispersive use: 0.99
Technical conditions and measures at process level (source) to prevent release
Common practices vary across sites thus conservative process release estimates used.
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of =: >=
0%
Risk from environmental exposure is driven by
Treat air emissions to provide a typical removal (or abatement?) efficiency of: Not Applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement) efficiency
of =: >= 84.8 %
Organisation measures to prevent/limit release from site
organisation measures to prevent/initia release from site
Do not apply industrial sludge to natural soils.
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater.
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 %
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 31. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 31. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 32. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health
Organisation Dependencies Dependencis Dependencis D
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 31. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 32. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1 Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]
Dro not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]
Organisation interstote procentiminate relation from site Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs is: 94.7 % Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available haz



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 110 of 125

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment

Further details on scaling and control technologies are provided in factsheet

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 111 of 125

Section 1 Exposure Scenario Title		
Title:		
Use in Coatings - Consumer		
Use Descriptor		
Sector(s) of Use	SU21	
Process Categories	PROCNA	
Environmental Release Categories	ERC8A	
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Covers the use in coatings (paints, inks, adhesives, etc) inc	luding exposures during use (including product transfer and	
preparation, application by brush, spray by hand or similar r	methods) and equipment cleaning.	
Section 2 Operational conditions and risk management	nt measures	
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	13]	
Other given operational conditions affecting workers ex	kposure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
No exposure assessment presented for human health. [G39		
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk management measures and Operating Co	naitions	
(only required controls to demonstrate sale use listed)		
General measures (Aspiration Hazard)	ainways) relates to notential for asniration, a non	
unantifiable bazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during indestion and also	
lif it is vomited following ingestion A DNEL cannot be derive	and Risks from the physicochemical bazards of substances	
can be controlled by implementing risk management measure	ures For substances classified as H304 the following	
measures need to be implemented to control the aspiration hazard		
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.	
Section 2.2 Control of environmental exposure		
Product characteristics		
Predominantly hydrophobic.		
Substance is complex UVCB.		
Duration, frequency and amount		
Annual site tonnage (tonnes/year): 1 tons/yr		
Continuous release.		
Emission Days (days/year): 365 days/yr		
Fraction of EU tonnage used in region: 0.1		
Fraction of Regional tonnage used Locally: 0.0005		
privaximum uaity site tonnage (kg/u): 2.8 kg / uay		
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EE1] 10		
Local marine water dilution factor: [EF2] 10		
Other given operational conditions affecting environmental exposure		
other given operational conditions affecting environme	antai exposure	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 112 of 125

Release fraction to air from wide dispersive use (regional only): 0.985 Release fraction to soil from wide dispersive use (regional only): 0.005

Release fraction to wastewater from wide dispersive use: 0.01

Technical conditions and measures at process level (source) to prevent release

Not applicable

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Not applicable

Organisation measures to prevent/limit release from site

Not applicable

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 18 kg / day Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 113 of 125

Section 1 Exposure Scenario Title		
Title:		
Use in Cleaning Agents - Consumer		
Use Descriptor		
Sector(s) of Use	SU21	
Process Categories	PROCNA	
Environmental Release Categories		
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Covers general exposures to consumers arising from the us	se of household products sold as washing and cleaning	
products, aerosols, coatings, de-icers, lubricants and air ca	re products.	
Section 2 Operational conditions and risk management	nt measures	
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	613	
Other given operational conditions affecting workers e	xposure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
No exposure assessment presented for human health. [G3]	9]	
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk Management Measures and Operating Co	nditions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)		
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-	
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
if it is vomited following ingestion. A DNEL cannot be derive	ed. Risks from the physicochemical hazards of substances	
can be controlled by implementing risk management measu	ures. For substances classified as H304, the following	
measures need to be implemented to control the aspiration hazard.		
Do not ingest. If swallowed then seek immediate medical	attention. Do NOT induce vomiting.	
Section 2.2 Control of environmental exposure		
Product characteristics		
Predominantly hydrophobic.		
Substance is complex UVCB.		
Duration, frequency and amount		
Annual site tonnage (tonnes/year): 1 tons/yr		
Continuous release.		
Emission Days (days/year): 365 days/yr		
Fraction of EU tonnage used in region: 0.1		
Fraction of Regional tonnage used Locally: 0.0005		
privaximum uaity site tonnage (kg/u): 2.7 kg / uay		
Environmental factors not influenced by risk management		
Environmental factors not influenced by fisk management		
Local marine water dilution factor: [EF2] 10		
Local marine water dilution factor: [EF2] 100	ntel eve euro	
other given operational conditions anecting environmental exposure		



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 114 of 125

Release fraction to air from wide dispersive use (regional only): 0.95 Release fraction to soil from wide dispersive use (regional only): 0.025

Release fraction to wastewater from wide dispersive use: 0.025

Technical conditions and measures at process level (source) to prevent release

Not applicable

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Not applicable

Organisation measures to prevent/limit release from site

Not applicable

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 18 kg / day Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 115 of 125

Section 1 Exposure Scenario Title		
Title:		
Lubricants - Consumer (Low Release)		
Use Descriptor		
Sector(s) of Use	SU21	
Process Categories	PROCNA	
Environmental Release Categories	ERC9A	
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Covers the consumer use of formulated lubricants in closed	and open systems including transfer operations,	
application, operation of engines and similar articles, equip	nent maintenance and disposal of waste oil.	
Section 2 Operational conditions and risk management	nt measures	
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	13]	
Other given operational conditions affecting workers ex	kposure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
No exposure assessment presented for human health. [G39	9]	
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk Management Measures and Operating Co	nditions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)		
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-	
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
If it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances	
can be controlled by implementing fisk management measu	hered	
Do not ingost I f swallowed then sock immediate medical	Hazaru.	
Do not ingest. If swallowed then seek immediate medical attention. Do NOT induce vomiting.		
Section 2.2 Control of environmental exposure		
Product characteristics		
Substance is complex LIVCB		
Duration, frequency and amount		
Annual site tonnage (tonnes/year): 57 tons/yr		
Continuous release		
Emission Days (days/year): 365 days/yr		
Fraction of FU tonnage used in region: 0.1		
Fraction of Regional tonnage used Locally: 0.0005		
Maximum daily site tonnage (kg/d): 160 kg / day		
Regional use tonnage (tonnes/year): 110000 tons/yr		
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EF1] 10		
Local marine water dilution factor: [EF2] 100		
Other given operational conditions affecting environme	ntal exposure	
· · · · · · · · · · · · · · · · · · ·	-	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 116 of 125

Release fraction to air from wide dispersive use (regional only): 0.01 Release fraction to soil from wide dispersive use (regional only): 0.01

Release fraction to wastewater from wide dispersive use: 0.01

Technical conditions and measures at process level (source) to prevent release

Not applicable

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Not applicable

Organisation measures to prevent/limit release from site

Not applicable

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 690 kg / day Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 117 of 125

Section 1 Exposure Scenario Title		
Title:		
Lubricants - Consumer (High Release)		
Use Descriptor		
Sector(s) of Use	SU21	
Process Categories	PROCNA	
Environmental Release Categories	ERC8A	
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Covers the consumer use of formulated lubricants in closed	and open systems including transfer operations,	
application, operation of engines and similar articles, equipr	nent maintenance and disposal of waste oil.	
Section 2 Operational conditions and risk managemen	nt measures	
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	13]	
Other given operational conditions affecting workers ex	kposure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
No exposure assessment presented for human health. [G39	9]	
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk Management Measures and Operating Co	nditions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)		
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-	
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
If it is vomited following ingestion. A DNEL cannot be derive	a. Risks from the physicochemical nazards of substances	
measures need to be implemented to control the appiration	hezerd	
Do not ingost If swallowed then sock immediate medical	nazaru. attention Do NOT induce vemiting	
Section 2.2. Control of environmental exposure		
Product observatoristics		
Product characteristics		
Substance is complex LIVCB		
Burstion, frequency and amount		
Annual site tennade (tennec/year): 14 tens/yr		
Continuous release		
Emission Days (days/year): 365 days/yr		
Fraction of EU tonnage used in region: 0.1		
Fraction of Regional tonnage used Locally: 0.0005		
Maximum daily site tonnage (kg/d): 39 kg / day		
Regional use tonnage (tonnes/year): 29000 tons/yr		
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EF1] 10		
Local marine water dilution factor: [EF2] 100		
Other given operational conditions affecting environme	ntal exposure	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 118 of 125

Release fraction to air from wide dispersive use (regional only):0.005Release fraction to soil from wide dispersive use (regional only):0.05

Release fraction to wastewater from wide dispersive use: 0.05

Technical conditions and measures at process level (source) to prevent release

Not applicable

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Not applicable

Organisation measures to prevent/limit release from site

Not applicable

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day

Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %

Not applicable as there is no release to wastewater.

The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 160 kg / day Conditions and measures related to external treatment of waste for disposal

External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste

External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure Estimation

3.1. Health

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]

3.2. Environment

The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]

Section 4 Guidance to check compliance with the Exposure Scenario

4.1. Health

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]

Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]

Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 119 of 125

Section 1 Exposure Scenario Title		
Title:		
Agrochemical uses - Consumer		
Use Descriptor		
Sector(s) of Use	SU21	
Process Categories	PROCNA	
Environmental Release Categories	ERC8A	
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Covers the consumer use of agrochemicals in liquid and so	lid forms.	
Section 2 Operational conditions and risk management	nt measures	
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated different	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	.13]	
Other given operational conditions affecting workers ex	(posure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
No exposure assessment presented for human health. [G39	۶]	
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk Management Measures and Operating Co	nditions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)		
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-	
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
If it is vomited following ingestion. A DNEL cannot be derive	d. Risks from the physicochemical hazards of substances	
can be controlled by implementing risk management measu	Ires. For substances classified as H304, the following	
Do not ingost I f swallowed then sock immediate medical	Ilazalu. attention Do NOT induce vemiting	
Do not ingest. If swanowed then seek infinediate medical attention. Do NOT induce volniting.		
Dreduct characteristics		
Product Characteristics		
Substance is complex LIVCR		
Substance is complex UVCB.		
Annual site tennage (tennes/year): 4.1 tens/yr		
Continuous release		
Emission Days (days/year): 365 days/yr		
Eraction of El tonnade used in region: 0.1		
Fraction of Regional tonnage used Locally: 0.0005		
Maximum daily site tonnage (kg/d): 11 kg / day		
Regional use tonnage (tonnes/year): 2000 tons/yr		
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EF1] 10		
Local marine water dilution factor: [EF2] 100		
Other given operational conditions affecting environmental exposure		
Release fraction to air from wide dispersive use (regional or	nly): 0.9	
	**	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 120 of 125

Release fraction to soil from wide dispersive use (regional only): 0.09 Release fraction to wastewater from wide dispersive use: 0.01 Technical conditions and measures at process level (source) to prevent release Not applicable Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Not applicable Organisation measures to prevent/limit release from site Not applicable Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 72 kg / day Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Risk Management Measures are based on gualitative risk characterisation. [G37] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 121 of 125

Section 1 Exposure Scenario Title		
Title:		
Use as a fuel - Consumer		
Use Descriptor		
Sector(s) of Use	SU21	
Process Categories	PROCNA	
Environmental Release Categories	ERC9A, ERC9B	
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Covers consumer uses in liquid fuels.		
Section 2 Operational conditions and risk management	nt measures	
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	:13]	
Other given operational conditions affecting workers ex	kposure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
No exposure assessment presented for human health. [G3	9]	
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk Management Measures and Operating Co	nditions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)		
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-	
quantifiable hazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
If it is vomited following ingestion. A DNEL cannot be derive	ed. Risks from the physicochemical nazards of substances	
reasures need to be implemented to control the conjustion	hezerd	
Do not ingest I f swallowed then seek immediate medical	attention Do NOT induce vomiting	
Section 2.2. Control of environmental exposure		
Dreduct observatoriation		
Predominantly hydronhobic		
Substance is complex LIVCB		
Duration frequency and amount		
Annual site tonnage (tonnes/year): 5 tons/yr		
Continuous release		
Emission Days (days/year): 365 days/yr		
Eraction of EU tonnage used in region: 0.1		
Fraction of Regional tonnage used Locally: 0 0005		
Maximum daily site tonnage (kg/d): 14 kg / day		
Regional use tonnage (tonnes/year): 10000 tons/yr		
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EF1] 10		
Local marine water dilution factor: [EF2] 100		
Other given operational conditions affecting environmental exposure		
Release fraction to air from wide dispersive use (regional or	nly): 0.0001	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 122 of 125

Release fraction to soil from wide dispersive use (regional only): 0.00001
Release fraction to wastewater from wide dispersive use: 0.00001
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Not applicable
Organisation measures to prevent/limit release from site
Not applicable
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day
Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 %
Not applicable as there is no release to wastewater.
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 91 kg / day
Conditions and measures related to external treatment of waste for disposal
Combustion emissions considered in regional exposure assessment [ETW2]
Combustion emissions limited by required exhaust emission controls [E I W1]
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
This substance is consumed during use and no waste of the substance is generated [ERW3]
Section 3 Exposure Estimation
3.1. Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21]
3.2. Environment
The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32]
Available hazard data do not support the need for a DNEL to be established for other health effects.[G36]
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational
Conditions outlined in Section 2 are implemented. [G22]
Risk Management Measures are based on qualitative risk characterisation. [G37]

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment



AP/E CORE 100 Product Name: Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 123 of 125

Section 1 Exposure Scenario Title		
Title:		
Functional Fluids - Consumer		
Use Descriptor		
Sector(s) of Use	SU21	
Process Categories	PROCNA	
Environmental Release Categories	ERC9A	
Specific Environmental Release Category	ESVOC 1.1.v1	
Processes, tasks, activities covered		
Use of sealed items containing functional fluids e.g. transfe	r oils, hydraulic fluids, refrigerants.	
Section 2 Operational conditions and risk management	nt measures	
Section 2.1 Control of worker exposure		
Product Characteristic		
Liquid		
Duration, frequency and amount		
Covers daily exposures up to 8 hours (unless stated differe	ntly)[G2]	
Covers percentage substance in the product up to 100 %[G	13]	
Other given operational conditions affecting workers ex	kposure	
Assumes a good basic standard of occupational hygiene is	implemented [G1]	
No exposure assessment presented for human health. [G39	9]	
Operation is carried out at elevated temperature (>20 C abo	ove ambient temperature)[OC7]	
Contributing Scenarios/		
Specific Risk Management Measures and Operating Co	nditions	
(only required controls to demonstrate safe use listed)		
General measures (Aspiration Hazard)		
The H304 risk phrase (May be fatal if swallowed and enters	airways) relates to potential for aspiration, a non-	
quantifiable nazard determined by physico-chemical proper	ties (i.e. viscosity) that can occur during ingestion and also	
In it is vomited following ingestion. A DNEL cannot be derive	C. Risks from the physicochemical hazards of substances	
measures need to be implemented to control the aspiration	hazard	
Do not ingest If swallowed then seek immediate medical	attention Do NOT induce vomiting	
Section 2.2. Control of onvironmental exposure		
Product characteristics		
Predominantly hydrophobic		
Substance is complex LIV/CB		
Duration frequency and amount		
Annual site tonnage (tonnes/year): 0.6 tons/yr		
Continuous release		
Emission Days (days/year): 365 days/yr		
Fraction of EU tonnage used in region: 0.1		
Fraction of Regional tonnage used Locally: 0.0005		
Maximum daily site tonnage (kg/d): 1.6 kg / day		
Regional use tonnage (tonnes/year): 1200 tons/yr		
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EF1] 10		
Local marine water dilution factor: [EF2] 100		
Other given operational conditions affecting environmental exposure		
Release fraction to air from wide dispersive use (regional or	nly): 0.05	



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 124 of 125

Release fraction to soil from wide dispersive use (regional only): 0.025 Release fraction to wastewater from wide dispersive use: 0.025 Technical conditions and measures at process level (source) to prevent release Not applicable Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Not applicable Organisation measures to prevent/limit release from site Not applicable Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 94.7 % Not applicable as there is no release to wastewater. The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 11 kg / day Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3] Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1] Section 3 Exposure Estimation 3.1. Health The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated [G21] 3.2. Environment The Hydrocarbon Block Method has been used to calculate environmental exposrue with the Petrorisk model.[EE2] Section 4 Guidance to check compliance with the Exposure Scenario 4.1. Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. [G32] Available hazard data do not support the need for a DNEL to be established for other health effects.[G36] Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Risk Management Measures are based on gualitative risk characterisation. [G37] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]

4.2. Environment



Product Name: AP/E CORE 100 Revision Date: 22 Feb 2021 Revision Number: 1.08 Page 125 of 125