

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Trade name or designation of the mixture HyVolt-PowerOil 60U

Registration number -

Synonyms None.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Transformer Oil

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

MANUFACTURER: Ergon, Inc.
P.O. Box 1639
Jackson, MS 39181 USA

EU Contact: Ergon International, Inc.
Drève Richelle 161 Building C
B-1410 Waterloo, Belgium

Emergency Phone Numbers:

US Customer Service: + 1-800-222-7122

CHEMTREC: + 1-800-424-9300 After Business Hours (North America)

+ 1-703-527-3887 (International)

See Section 15 for additional CHEMTREC Hotline Numbers

E-mail: sds@ergon.com

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended**Health hazards**

Aspiration hazard Category 1

H304 - May be fatal if swallowed and enters airways.

2.2. Label elements**Label according to Regulation (EC) No. 1272/2008 as amended**

Contains: Distillates (petroleum), hydrotreated light naphthenic

Hazard pictograms

Signal word Danger

Hazard statements

H304 May be fatal if swallowed and enters airways.

Precautionary statements**Prevention**

P260 Do not breathe gas/mist/vapours/spray.

Response

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTRE/doctor/.

P331 Do NOT induce vomiting.

Storage

P405 Store locked up.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
Supplemental label information	None.
2.3. Other hazards	This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII. The mixture does not contain any substances included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties at a concentration equal to or greater than 0.1% by weight.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Distillates (petroleum), hydrotreated light naphthenic	20 - 100	64742-53-6 265-156-6	01-2119480375-34	649-466-00-2	Classification: Asp. Tox. 1;H304
Distillates (petroleum), hydrotreated light paraffinic	0 - 40	64742-55-8 265-158-7	-	649-468-00-3	Classification: -
Lubricating Oils (petroleum), C15-30, Hydrotreated Neutral Oil-based	0 - 40	72623-86-0 276-737-9	-	649-482-00-X	Classification: -
Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	0 - 20	72623-87-1 276-738-4	-	649-483-00-5	Classification: -
Distillates (petroleum), solvent-refined heavy naphthenic	0 - 10	64741-96-4 265-097-6	-	649-457-00-3	Classification: -
Distillates (petroleum), solvent-refined light paraffinic	0 - 10	64741-89-5 265-091-3	-	649-455-00-2	Classification: -

List of abbreviations and symbols that may be used above

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information Contact physician if discomfort continues. Keep victim under observation.

4.1. Description of first aid measures

Inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. IF exposed or concerned: Get medical advice/attention.
Skin contact	Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If skin irritation or an allergic skin reaction develops, get medical attention.
Eye contact	Flush thoroughly with water. If irritation occurs, get medical assistance.
Ingestion	Do NOT induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Call a poison control centre immediately.

4.2. Most important symptoms and effects, both acute and delayed Defatting of the skin. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Halon. Dry chemicals. Foam. Carbon dioxide (CO₂). Water spray or fog. Do not use water jet as an extinguisher, as this will spread the fire.

Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
5.2. Special hazards arising from the substance or mixture	No unusual fire or explosion hazards noted.
5.3. Advice for firefighters	
Special protective equipment for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Special fire fighting procedures	Cool containers exposed to flames with water until well after the fire is out. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Use pressurised air mask if product is involved in a fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewer, basements or confined areas. Avoid discharge to the aquatic environment. Contact local authorities in case of spillage to drain/aquatic environment.

6.3. Methods and material for containment and cleaning up

Large Spills: ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands after handling and before eating. Avoid prolonged exposure. All handling to take place in well-ventilated area. Shower after work. Remove and wash contaminated clothing promptly.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame.

7.3. Specific end use(s)

Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Belgium. Exposure Limit Values

Material	Type	Value	Form
HyVolt-PowerOil 60U	STEL	10 mg/m ³	Mist.
	TWA	5 mg/m ³	Mist.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value
HyVolt-PowerOil 60U	TWA	5 mg/m ³

Czech Republic. OELs. Government Decree 361

Material	Type	Value
HyVolt-PowerOil 60U	Ceiling	1000 mg/m ³
	TWA	200 mg/m ³

Denmark. Exposure Limit Values

Material	Type	Value	Form
HyVolt-PowerOil 60U	TLV	1 mg/m ³	Mist.

Finland. Workplace Exposure Limits			
Material	Type	Value	Form
HyVolt-PowerOil 60U	TWA	5 mg/m3	Mist.
Greece. OELs (Decree No. 90/1999, as amended)			
Material	Type	Value	Form
HyVolt-PowerOil 60U	TWA	5 mg/m3	Mist.
Hungary. OELs. Joint Decree on Chemical Safety of Workplaces			
Material	Type	Value	Form
HyVolt-PowerOil 60U	Ceiling	5 mg/m3	Mist.
Iceland. OELs. Regulation 154/1999 on occupational exposure limits			
Material	Type	Value	Form
HyVolt-PowerOil 60U	TWA	1 mg/m3	Mist.
Ireland. Occupational Exposure Limits			
Material	Type	Value	Form
HyVolt-PowerOil 60U	TWA	0,2 mg/m3	Inhalable fraction.
Italy. Occupational Exposure Limits			
Material	Type	Value	Form
HyVolt-PowerOil 60U	TWA	5 mg/m3	Inhalable fraction.
Lithuania. OELs. Limit Values for Chemical Substances, General Requirements			
Material	Type	Value	Form
HyVolt-PowerOil 60U	STEL	3 mg/m3	Fume and mist.
	TWA	1 mg/m3	Fume and mist.
Netherlands. OELs (binding)			
Material	Type	Value	Form
HyVolt-PowerOil 60U	TWA	5 mg/m3	Mist.
Norway. Administrative Norms for Contaminants in the Workplace			
Material	Type	Value	Form
HyVolt-PowerOil 60U	TLV	1 mg/m3	Mist.
Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817			
Material	Type	Value	Form
HyVolt-PowerOil 60U	STEL	10 mg/m3	Aerosol
	TWA	5 mg/m3	Aerosol
Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)			
Material	Type	Value	Form
HyVolt-PowerOil 60U	STEL	10 mg/m3	Aerosol
	TWA	5 mg/m3	Aerosol
Romania. OELs. Protection of workers from exposure to chemical agents at the workplace			
Material	Type	Value	
HyVolt-PowerOil 60U	STEL	10 mg/m3	
	TWA	5 mg/m3	
Spain. Occupational Exposure Limits			
Material	Type	Value	Form
HyVolt-PowerOil 60U	STEL	10 mg/m3	Mist.
	TWA	5 mg/m3	Mist.
Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)			
Material	Type	Value	Form
HyVolt-PowerOil 60U	STEL	3 mg/m3	Mist.
	TWA	1 mg/m3	Mist.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no effect levels (DNELs)	Not available.
Predicted no effect concentrations (PNECs)	Not available.
8.2. Exposure controls	
Appropriate engineering controls	Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.
Individual protection measures, such as personal protective equipment	
General information	Wear suitable protective equipment. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Goggles/face shield are recommended. Eye protection should meet standard EN 166.
Skin protection	
- Hand protection	Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves. Wear suitable gloves tested to EN374. When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable.
- Other	Chemical/oil resistant clothing is recommended. Launder contaminated clothing before reuse.
Respiratory protection	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN14387.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
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 to remove contaminants. Discard contaminated footwear that cannot be cleaned.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Form	Liquid.
Colour	Water White to Pale
Odour	Mild Petroleum Odor
Melting point/freezing point	-61 °C (-77,8 °F) ASTM D5950/ISO 3016
Boiling point or initial boiling point and boiling range	296 °C (564,8 °F) ISO 3924/ ASTM D2887
Flammability	Will burn if involved in a fire.
Flash point	>= 135,0 °C (>= 275,0 °F) Pensky-Martens Closed Cup ASTM D93
Auto-ignition temperature	> 315 °C (> 599 °F) ASTM E659
Decomposition temperature	Not determined.
pH	Not determined.
Kinematic viscosity	9,6 mm ² /s ISO 3140 (40 °C (104 °F))
Solubility	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water) (log value)	Not established.
Vapour pressure	Not determined.
Density and/or relative density	
Relative density	0,88 (20 °C (68 °F) ISO 12185/ ASTM D4052)
Vapour density	Not determined.
Particle characteristics	
Particle size	Not applicable, material is a liquid.

9.2. Other information

9.2.1. Information with regard to physical hazard classes No relevant additional information available.

9.2.2. Other safety characteristics No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity Strong oxidising agents.

10.2. Chemical stability Stable.

10.3. Possibility of hazardous reactions Hazardous polymerisation does not occur.

10.4. Conditions to avoid Avoid temperatures exceeding the flash point.

10.5. Incompatible materials Strong oxidising agents.

10.6. Hazardous decomposition products Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation May be fatal if swallowed and enters airways.

Skin contact Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Eye contact May be irritating to eyes.

Ingestion May cause gastrointestinal discomfort if swallowed. Do not induce vomiting. Vomiting may increase risk of product aspiration. May be fatal if swallowed and enters airways.

Symptoms Defatting of the skin. Coughing. Shortness of breath. Discomfort in the chest.

11.1. Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Components	Species	Test Results
Distillates (petroleum), hydrotreated light naphthenic (CAS 64742-53-6)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
Inhalation		
LC50	Rat	> 5000 mg/m ³
Oral		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation May cause defatting of the skin, but is neither an irritant nor a sensitizer.

Serious eye damage/eye irritation Not classified. May cause minor irritation on eye contact.

Respiratory sensitisation Based on available data, the classification criteria are not met.

Skin sensitisation Not classified. May cause defatting of the skin, but is not an irritant.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. Note L - Meets EU requirement of less than 3% (w/w) DMSO extract for total polycyclic aromatic compound (PAC) using IP 346.

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Reproductive toxicity Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard May be fatal if swallowed and enters airways.

Mixture versus substance information No information available.

11.2. Information on other hazards

Endocrine disrupting properties This mixture does not contain any substances having endocrine disrupting properties with respect to human health as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.

Other information Risk of chemical pneumonia after aspiration.

SECTION 12: Ecological information

- 12.1. Toxicity** Based on available data, the classification criteria are not met for hazardous to the aquatic environment.
- 12.2. Persistence and degradability** Expected to be inherently biodegradable.
- 12.3. Bioaccumulative potential** Bioaccumulation is unlikely to be significant because of the low water solubility of this product.
- Partition coefficient n-octanol/water (log Kow)** Not established.
- Bioconcentration factor (BCF)** Not available.
- 12.4. Mobility in soil** Expected to be slightly to moderately mobile in soil.
- 12.5. Results of PBT and vPvB assessment** This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.
- 12.6. Endocrine disrupting properties** This mixture does not contain any substances having endocrine disrupting properties with respect to the environment as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.
- 12.7. Other adverse effects** Oil spills are generally hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Residual waste** Dispose of in accordance with local regulations. Avoid discharge into water courses or onto the ground.
- Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.
- EU waste code** Waste codes should be assigned by the user based on the application for which the product was used.
- Disposal methods/information** Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

14.7. Maritime transport in bulk according to IMO instruments This product is a liquid. Therefore, bulk transport is governed by MARPOL 73/78, Annex I.

General information Not regulated as dangerous goods.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

HyVolt oils are certified to be PCB-free. HyVolt oils are processed from naturally occurring raw materials with no additives or recycled oils that might introduce PCB contamination.

National regulations

Germany: WGK 1

15.2. Chemical safety assessment

The chemical safety assessment has been carried out for the components of the mixture listed in section 3 of the SDS. Exposure scenarios relevant for these substances are annexed to this eSDS.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

SECTION 16: Other information

List of abbreviations

vPvB: very Persistent, very Bioaccumulative.
PBT: Persistent, bioaccumulative, toxic.

CEN: European Committee for Standardization (Comité Européen de Normalisation).
TWA: Time Weighted Average.
STEL: Short-term Exposure Limit.
TLV: Threshold Limit Value.

References

ACGIH
IARC Monographs. Overall Evaluation of Carcinogenicity
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
Chemical Abstracts Service Registry Handbook
CRC: Handbook of Chemistry and Physics
ILO Safety Cards
International Labour Organization
International Maritime Organization Marine Pollutants List
NFPA Hazardous Chemical Data Sheets
NIOSH Pocket Guide
Registry of Toxic Effects of Chemical Substances (RTECS)
US DOT Hazardous Materials Regulations
Chemical safety report.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.

Full text of any statements, which are not written out in full under sections 2 to 15

H304 May be fatal if swallowed and enters airways.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.

Training information

Not available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Annex to the extended Safety Data Sheet (eSDS)

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1. ES 1: Use in functional fluids; Industrial

1.1. Title section

ES Name: Use in functional fluids; Industrial

Environment

1: Use in functional fluids; Industrial ERC7

Worker

2:	Product characteristics General measures applicable to all activities	PROC1 PROC2 PROC4 PROC8a PROC8b PROC9 PROC28
3:	Bulk transfers; Dedicated facility	PROC1 PROC2
4:	Drum/batch transfers; Dedicated facility	PROC8b
5:	Filling of articles/equipment; Closed systems	PROC9
6:	Filling of equipment from drums or containers; Non-dedicated facility	PROC8a
7:	General exposures; Closed systems	PROC2
8:	General exposures; Open systems	PROC4
9:	General exposures; Open systems; Elevated temperature	PROC4
10:	Remanufacture of reject articles	PROC9
11:	Equipment cleaning and maintenance	PROC8a PROC28
12:	Storage	PROC1 PROC2

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Use in functional fluids; Industrial (ERC7)

Product (article) characteristics

Substance is complex UVCB.

Predominantly hydrophobic

Amount used (or contained in articles), frequency and duration of use/exposure

Fraction of EU tonnage used in region 10 %

Regional use tonnage 8700,34 tonnes/year

Fraction of regional tonnage used locally 0,11 %

Annual site tonnage 10 tonnes/day

Maximum daily site tonnage 500 kg/day

Emission days: 20 days per year

Continuous release

Technical and organisational conditions and measures

Control measures to prevent releases : Common practices vary across sites thus conservative process release estimates used. Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required. Treat air emission to provide a typical removal efficiency of Air - minimum efficiency of 0 %

Conditions and measures related to sewage treatment plant

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of Waste - minimum efficiency of 0 %

Do not apply industrial sludge to natural soils.

Sewage sludge should be incinerated, contained or reclaimed.

Not applicable as there is no release to wastewater.

Estimated substance removal from wastewater via municipal sewage treatment Waste - minimum efficiency of 88,8 %

Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs Waste - minimum efficiency of 88,8 %

STP effluent: 2000 m3/day

Maximum allowable site tonnage (MSafe): 4591 kg/day

Conditions and measures related to treatment of waste (including article waste)

External treatment and disposal of waste should comply with applicable local and/or national regulations.

External recovery and recycling of waste should comply with applicable local and/or national regulations.

Other conditions affecting environmental exposure

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

- . Release fraction to air from process (initial release prior to RMM) 0,01 %
- . Release fraction to wastewater from process (initial release prior to RMM) 0,0001 %
- . Release fraction to soil from process (initial release prior to RMM) 0,1 %

1.2.2. Control of worker exposure: Product characteristics General measures applicable to all activities (PROC1 PROC2 PROC4 PROC8a PROC8b PROC9 PROC28)

Product (article) characteristics

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Covers percentage substance in the product up to 100 %.

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours

Other conditions affecting workers exposure

Covers use at ambient temperatures.°C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes a good basic standard of occupational hygiene is implemented

1.2.3. Control of worker exposure: Bulk transfers; Dedicated facility (PROC1 PROC2)

Technical and organisational conditions and measures

Handle substance within a closed system.

1.2.4. Control of worker exposure: Drum/batch transfers; Dedicated facility (PROC8b)

Technical and organisational conditions and measures

No other specific measures identified.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Ensure no splashing occurs during transfer.

1.2.5. Control of worker exposure: Filling of articles/equipment; Closed systems (PROC9)

Technical and organisational conditions and measures

Handle substance within a closed system.

1.2.6. Control of worker exposure: Filling of equipment from drums or containers; Non-dedicated facility (PROC8a)

Technical and organisational conditions and measures

Use drum pumps.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Ensure no splashing occurs during transfer.

1.2.7. Control of worker exposure: General exposures; Closed systems (PROC2)

Technical and organisational conditions and measures

Handle substance within a closed system.

Sample via a closed loop or other system to avoid exposure.

1.2.8. Control of worker exposure: General exposures; Open systems (PROC4)

Technical and organisational conditions and measures

No other specific measures identified.

1.2.9. Control of worker exposure: General exposures; Open systems; Elevated temperature (PROC4)

Technical and organisational conditions and measures

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Other conditions affecting workers exposure

Assumes process temperature up to 80°C

1.2.10. Control of worker exposure: Remanufacture of reject articles (PROC9)

Technical and organisational conditions and measures

Drain or remove substance from equipment prior to break-in or maintenance.

1.2.11. Control of worker exposure: Equipment cleaning and maintenance (PROC8a PROC28)

Technical and organisational conditions and measures

Drain down and flush system prior to equipment break-in or maintenance.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Wear suitable coveralls to prevent exposure to the skin.

Clear spills immediately.

1.2.12. Control of worker exposure: Storage (PROC1 PROC2)

Technical and organisational conditions and measures

Store substance within a closed system.

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Use in functional fluids; Industrial (ERC7)

protection target	Exposure estimate	Method	RCR
Maximum Risk Characterization Ratios for air emissions		Hydrocarbon Block Method (Petrorisk)	<0,01
Maximum Risk Characterization Ratios for wastewater emissions		Hydrocarbon Block Method (Petrorisk)	0,73

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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.

Health

Available hazard data do not enable the derivation of a DNEL for aspiration effects.

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Risk management measures are based on qualitative risk characterisation.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

2. ES 2: Use in functional fluids; Professional

2.1. Title section

ES Name: Use in functional fluids; Professional

Environment

1:	Use in functional fluids; Professional	ERC9a ERC9b
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Worker

2:	Product characteristics General measures applicable to all activities	PROC1 PROC2 PROC3 PROC8a PROC9 PROC20 PROC28
3:	Drum/batch transfers; Non-dedicated facility	PROC8a
4:	Transfer from/pouring from containers	PROC9
5:	Filling of equipment from drums or containers	PROC9
6:	General exposures; Closed systems	PROC1 PROC2 PROC3
7:	Operation of equipment containing engine oils and similar; Closed systems	PROC20
8:	Operation of equipment containing engine oils and similar; Closed systems; Elevated temperature	PROC20
9:	Remanufacture of reject articles	PROC9
10:	Equipment maintenance	PROC8a PROC28
11:	Storage	PROC1 PROC2

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Use in functional fluids; Professional (ERC9a ERC9b)

Product (article) characteristics

Substance is complex UVCB.

Predominantly hydrophobic

Amount used (or contained in articles), frequency and duration of use/exposure

Fraction of EU tonnage used in region 10 %

Regional use tonnage 1783,26 tonnes/year

Fraction of regional tonnage used locally 0,05 %

Annual site tonnage 0,89163 tonnes/day

Maximum daily site tonnage 2,4428 kg/day

Emission days: 365 days per year

Continuous release

Technical and organisational conditions and measures

Control measures to prevent releases : Common practices vary across sites thus conservative process release estimates used. Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no onsite wastewater treatment required.

Conditions and measures related to sewage treatment plant

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of Waste - minimum efficiency of 81,2 %

Do not apply industrial sludge to natural soils.

Sewage sludge should be incinerated, contained or reclaimed.

Not applicable as there is no release to wastewater.

Estimated substance removal from wastewater via municipal sewage treatment Waste - minimum efficiency of 88,8 %

Total efficiency of removal from wastewater after onsite and offsite municipal treatment plant) RMMs Waste - minimum efficiency of 88,8 %

STP effluent: 2000 m3/day

Maximum allowable site tonnage (MSafe): 4,0823 kg/day

Conditions and measures related to treatment of waste (including article waste)

External treatment and disposal of waste should comply with applicable local and/or national regulations.

External recovery and recycling of waste should comply with applicable local and/or national regulations.

Other conditions affecting environmental exposure

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

- . Release fraction to air from wide dispersive use (regional only) 5 %
- . Release fraction to wastewater from wide dispersive use 5 %
- . Release fraction to soil from wide dispersive use (regional only) 5 %

2.2.2. Control of worker exposure: Product characteristics General measures applicable to all activities (PROC1 PROC2 PROC3 PROC8a PROC9 PROC20 PROC28)

Product (article) characteristics

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Covers percentage substance in the product up to 100 %.

Amount used (or contained in articles), frequency and duration of use/exposure

Duration: Covers daily exposures up to 8 hours

Other conditions affecting workers exposure

Covers use at ambient temperatures.°C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Assumes a good basic standard of occupational hygiene is implemented

2.2.3. Control of worker exposure: Drum/batch transfers; Non-dedicated facility (PROC8a)

Technical and organisational conditions and measures

Use drum pumps.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Ensure no splashing occurs during transfer.

2.2.4. Control of worker exposure: Transfer from/pouring from containers (PROC9)

Technical and organisational conditions and measures

Use drum pumps.

2.2.5. Control of worker exposure: Filling of equipment from drums or containers (PROC9)

Technical and organisational conditions and measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

2.2.6. Control of worker exposure: General exposures; Closed systems (PROC1 PROC2 PROC3)

Technical and organisational conditions and measures

Handle substance within a closed system.

Sample via a closed loop or other system to avoid exposure.

2.2.7. Control of worker exposure: Operation of equipment containing engine oils and similar; Closed systems (PROC20)

Technical and organisational conditions and measures

Handle substance within a closed system.

2.2.8. Control of worker exposure: Operation of equipment containing engine oils and similar; Closed systems; Elevated temperature (PROC20)

Technical and organisational conditions and measures

Handle substance within a closed system.

Other conditions affecting workers exposure

Assumes process temperature up to 80°C

2.2.9. Control of worker exposure: Remanufacture of reject articles (PROC9)

Technical and organisational conditions and measures

Drain or remove substance from equipment prior to break-in or maintenance.

2.2.10. Control of worker exposure: Equipment maintenance (PROC8a PROC28)

Technical and organisational conditions and measures

Drain down and flush system prior to equipment break-in or maintenance.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Wear suitable coveralls to prevent exposure to the skin.

Clear spills immediately.

2.2.11. Control of worker exposure: Storage (PROC1 PROC2)

Technical and organisational conditions and measures

Store substance within a closed system.

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Use in functional fluids; Professional (ERC9a ERC9b)

protection target	Exposure estimate	Method	RCR
Maximum Risk Characterization Ratios for air emissions		Hydrocarbon Block Method (Petrorisk)	0,32
Maximum Risk Characterization Ratios for wastewater emissions		Hydrocarbon Block Method (Petrorisk)	0,6

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment

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