

# Safety Data Sheet

## DIESEL ANTIGELO -20°C



Safety Data Sheet dated 21/10/2024, version 18

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1. Product identifier  
Mixture identification:  
Trade name: DIESEL ANTIGELO -20°C  
Trade code: 9650
- 1.2. Relevant identified uses of the substance or mixture and uses advised against  
Recommended use:  
Fuel additive  
Uses advised against:  
Strictly adhere to the recommended uses.
- 1.3. Details of the supplier of the safety data sheet  
Supplier:  
Arexons S.p.A.  
via Antica di Cassano, 23, 20063  
Cernusco sul Naviglio (MI), Italy  
Arexons S.p.A.  
Tel. +39 (0)2/924361 - Fax +39 (0)2/92436306  
Competent person responsible for the safety data sheet:  
arexons@arexons.it
- 1.4. Emergency telephone number  
Arexons S.p.A.  
Tel. +39 (0)2/924361 - Fax +39 (0)2/92436306  
In England and Wales: NHS 111 - dial 111  
In Scotland: NHS 24 - dial 111  
In Ireland: emergency number 112  
In South Africa: Poison Information Helpline 0861 555 777  
In Malta: emergency number 112

### SECTION 2: Hazards identification

- 2.1. Classification of the substance or mixture  
EC regulation criteria 1272/2008 (CLP):  
⚠ Warning, STOT SE 3, May cause drowsiness or dizziness.  
⚠ Danger, Asp. Tox. 1, May be fatal if swallowed and enters airways.  
⚠ Aquatic Chronic 2, Toxic to aquatic life with long lasting effects.  
EUH066 Repeated exposure may cause skin dryness or cracking.

Adverse physicochemical, human health and environmental effects:

No other hazards

#### 2.2. Label elements

Hazard pictograms:



Danger

Hazard statements:

H336 May cause drowsiness or dizziness.

H304 May be fatal if swallowed and enters airways.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



P103 Read carefully and follow all instructions.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER.  
P331 Do NOT induce vomiting.  
P391 Collect spillage.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with applicable regulations.

#### Special Provisions:

EUH066 Repeated exposure may cause skin dryness or cracking.  
PACK1 The packing must be featured by a safety lock for children.  
PACK2 The packing must have tactile indications of danger for blind people.

#### Contains

Distillates (petroleum), hydrotreated light  
Solvent naphtha (petroleum), heavy arom.; Kerosine - unspecified; [A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 165 oC to 290 oC (330 oF to 554 oF).]

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

#### 2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration  $\geq 0.1\%$

#### Other Hazards:

No other hazards

## SECTION 3: Composition/information on ingredients

#### 3.1. Substances

N.A.

#### 3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

stta	Name	Ident. Number	Classification
$\geq 50\%$ - $< 60\%$	Distillates (petroleum), hydrotreated light	EC: 926-141-6 REACH No.: 01-2119456620-43	☠ 3.10/1 Asp. Tox. 1 H304 EUH066
$\geq 30\%$ - $< 35\%$	Solvent naphtha (petroleum), heavy arom.; Kerosine - unspecified; [A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the	Index number: 649-424-00-3	☠ 3.10/1 Asp. Tox. 1 H304

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



	range of approximately 165 oC to 290 oC (330 oF to 554 oF).]	CAS: 64742-94-5 EC: 265-198-5 REACH No.: 01-2119463583-34	<div> <div></div> <div>3.8/3 STOT SE 3 H336</div> </div> <div> <div></div> <div>4.1/C2 Aquatic Chronic 2 H411</div> </div> <div> <div></div> <div>EUH066</div> </div>
>= 2% - < 3%	1,2,4-trimethylbenzene	Index number: 601-043-00-3 CAS: 95-63-6 EC: 202-436-9	<div> <div></div> <div>2.6/3 Flam. Liq. 3 H226</div> </div> <div> <div></div> <div>3.1/4/Inhal Acute Tox. 4 H332</div> </div> <div> <div></div> <div>3.2/2 Skin Irrit. 2 H315</div> </div> <div> <div></div> <div>3.3/2 Eye Irrit. 2 H319</div> </div> <div> <div></div> <div>3.8/3 STOT SE 3 H335</div> </div> <div> <div></div> <div>4.1/C2 Aquatic Chronic 2 H411</div> </div>
>= 0,1% - < 0,25%	naphthalene	Index number: 601-052-00-2 CAS: 91-20-3 EC: 202-049-5	<div> <div></div> <div>3.1/4/Oral Acute Tox. 4 H302</div> </div> <div> <div></div> <div>3.6/2 Carc. 2 H351</div> </div> <div> <div></div> <div>4.1/A1 Aquatic Acute 1 H400</div> </div> <div> <div></div> <div>M=1.</div> </div> <div> <div></div> <div>4.1/C1 Aquatic Chronic 1 H410</div> </div> <div> <div></div> <div>M=1.</div> </div>
>= 0,1% - < 0,25%	2-ethylhexanoic acid	Index number: 607-230-00-6 CAS: 149-57-5 EC: 205-743-6 REACH No.: 01-2119488942-23	<div> <div></div> <div>3.7/1B Repr. 1B H360</div> </div>

#### SECTION 4: First aid measures

##### 4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose off safely.

In case of eyes contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

In case of Ingestion:

Do NOT induce vomiting.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

##### 4.2. Most important symptoms and effects, both acute and delayed

None

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

None

#### SECTION 5: Firefighting measures

##### 5.1. Extinguishing media

Appropriate Extinguishing Media:

To carbon dioxide.

To dust.

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



Foam

Water spray.

Not Recommended Extinguishing Media:

Do not use direct water jets.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

5.3. Advice for firefighters

Normal fire-fighting clothing, such as an open-circuit compressed air breathing apparatus (EN 137), flame-resistant suit (EN469), flame-resistant gloves (EN 659) and firefighter's boots (HO A29 or A30).

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#### SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

For cleaning up:

Avoid flame and/or spark near leak and produced waste. Do not smoke. In case of large spills dike,

absorb and shovel up into suitable containers for disposal. Contain small spills with absorbent material.

Put dirty material in suitable container. Dispose of dirty material in accordance with local or national regulations.

6.4. Reference to other sections

See also section 8 and 13

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#### SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

See also section 8 for recommended protective equipment.

Advice on general occupational hygiene:

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

7.2. Conditions for safe storage, including any incompatibilities

Only store in the original container.

Keep away from food, drink and feed.

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

None in particular

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



#### SECTION 8: Exposure controls/personal protection

##### 8.1. Control parameters

Distillates (petroleum), hydrotreated light

20101.12 - TWA: 1200 mg/m<sup>3</sup>, 165 ppm

1,2,4-trimethylbenzene - CAS: 95-63-6

EU - TWA(8h): 100 mg/m<sup>3</sup>, 20 ppm

ACGIH - TWA(8h): 10 ppm - Notes: A4 - CNS impair, hematologic eff

naphthalene - CAS: 91-20-3

EU - TWA(8h): 50 mg/m<sup>3</sup>, 10 ppm

ACGIH - TWA(8h): 10 ppm - Notes: Skin, A3 - URT irr, cataracts, hemolytic anemia

2-ethylhexanoic acid - CAS: 149-57-5

ACGIH - TWA(8h): 5 mg/m<sup>3</sup> - Notes: (IFV) - Teratogenic eff

##### DNEL Exposure Limit Values

2-ethylhexanoic acid - CAS: 149-57-5

Worker Professional: 2 mg/kg - Consumer: 1 mg/kg - Exposure: Human Dermal -

Frequency: Long Term, systemic effects

Worker Professional: 14 mg/m<sup>3</sup> - Consumer: 3.5 mg/m<sup>3</sup> - Exposure: Human Inhalation -

Frequency: Long Term, systemic effects

Consumer: 1 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects

##### PNEC Exposure Limit Values

2-ethylhexanoic acid - CAS: 149-57-5

Target: Fresh Water - Value: 0.36 mg/l

Target: Marine water - Value: 0.03 mg/l

Target: Freshwater sediments - Value: 6.37 mg/kg

Target: Marine water sediments - Value: 0.63 mg/kg

Target: 09 - Value: 71.7 mg/l

##### 8.2. Exposure controls

###### Eye protection:

Eye glasses with side protection.

Compliant with EN 166

###### Protection for skin:

protective clothing

###### Protection for hands:

Nitrile or Viton gloves.

Compliant with EN 374.

Thickness: Cuff 0.10 mm; Palm 0.12 mm; Fingers 0.145 mm

###### Respiratory protection:

Use a suitable respiratory protection device.

###### Thermal Hazards:

None

###### Environmental exposure controls:

None

###### Appropriate engineering controls:

None

#### SECTION 9: Physical and chemical properties

##### 9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes:
Physical state:	Liquid	--	--
Colour:	Light yellow	--	--
Odour:	Characteristic	--	--
Melting point/freezing point:	N.A.	--	--

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



Boiling point or initial boiling point and boiling range:	N.A.	--	--
Flammability:	N.A.	--	--
Lower and upper explosion limit:	N.A.	--	--
Flash point:	>61°C	IP 170	--
Auto-ignition temperature:	N.A.	--	--
Decomposition temperature:	N.A.	--	--
pH:	N.A.	--	--
Kinematic viscosity:	<= 14 mm <sup>2</sup> /sec (40 °C)	--	--
Solubility in water:	N.A.	--	--
Solubility in oil:	N.A.	--	--
Partition coefficient n-octanol/water (log value):	N.A.	--	--
Vapour pressure:	N.A.	--	--
Density and/or relative density:	0.840 g/l (15°C)	ASTM D 4052-96	--
Relative vapour density:	N.A.	--	--
Particle characteristics:			
Particle size:	N.A.	--	--

#### 9.2. Other information

Properties	Value	Method:	Notes:
Viscosity:	3 mm <sup>2</sup> /s	07	--

## SECTION 10: Stability and reactivity

- 10.1. Reactivity
  - Stable under normal conditions
- 10.2. Chemical stability
  - Stable at normal ambient temperatures and when used as recommended.
- 10.3. Possibility of hazardous reactions
- 10.4. Conditions to avoid
  - Stable under normal conditions.
- 10.5. Incompatible materials
  - None in particular.
- 10.6. Hazardous decomposition products

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



None.

#### SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the product:

DIESEL ANTIFREEZE ML 250

a) acute toxicity

Not classified

Based on available data, the classification criteria are not met

b) skin corrosion/irritation

Not classified

Based on available data, the classification criteria are not met

c) serious eye damage/irritation

Not classified

Based on available data, the classification criteria are not met

d) respiratory or skin sensitisation

Not classified

Based on available data, the classification criteria are not met

e) germ cell mutagenicity

Not classified

Based on available data, the classification criteria are not met

f) carcinogenicity

Not classified

Based on available data, the classification criteria are not met

g) reproductive toxicity

Not classified

Based on available data, the classification criteria are not met

h) STOT-single exposure

The product is classified: STOT SE 3 H336

i) STOT-repeated exposure

Not classified

Based on available data, the classification criteria are not met

j) aspiration hazard

The product is classified: Asp. Tox. 1 H304

Toxicological information of the main substances found in the product:

Distillates (petroleum), hydrotreated light

a) acute toxicity:

Test: LC50 - Route: Inhalation - Species: Rat > 5000 mg/m3 - Duration: 8h

Test: LD50 - Route: Oral - Species: Rat > 5000 mg/kg

Test: LD50 - Route: Skin - Species: Rabbit > 5000 mg/kg

b) skin corrosion/irritation:

Test: OECD TG 404 - Route: Skin Negative

c) serious eye damage/irritation:

Test: OECD TG 405 - Route: EYE Negative

d) respiratory or skin sensitisation:

Test: Inhalation Sensitization 3

Test: Skin Sensitization 3

j) aspiration hazard:

Test: May be fatal if swallowed and enters airways (physical-chemical properties) - Route:

Oral Positive

Solvent naphtha (petroleum), heavy arom.; Kerosine - unspecified; [A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 165 oC to 290 oC (330 oF to 554 oF).] - CAS: 64742-94-5

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat > 2500 mg/kg



## Safety Data Sheet

### DIESEL ANTIGELO -20°C



Test: LD50 - Route: Skin - Species: Rabbit > 2000 mg/kg  
1,2,4-trimethylbenzene - CAS: 95-63-6  
a) acute toxicity:  
Test: LD50 - Route: Oral - Species: Rat 5000 mg/kg  
Test: LD50 - Route: Skin - Species: Rabbit 3160 mg/kg  
Test: LC50 - Route: Inhalation - Species: Rat 18000 mg/l - Duration: 4h  
naphthalene - CAS: 91-20-3  
a) acute toxicity:  
Test: LD50 - Route: Oral - Species: Rat > 500 mg/kg  
Test: LD50 - Route: Skin - Species: Rabbit > 2500 mg/kg  
2-ethylhexanoic acid - CAS: 149-57-5  
a) acute toxicity:  
Test: LD50 - Route: Oral - Species: Rat = 2043 mg/kg  
Test: LD50 - Route: Skin - Species: Rat > 2000 mg/kg  
Test: LC0 - Route: Inhalation - Species: Rat = 0.11 mg/l - Duration: 8h

#### 11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration  $\geq 0.1\%$

## SECTION 12: Ecological information

#### 12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Distillates (petroleum), hydrotreated light

a) Aquatic acute toxicity:

Endpoint: EL0 - Species: Daphnia 1000 mg/l - Duration h: 48

Endpoint: EL0 - Species: Algae 1000 mg/l - Duration h: 72

Endpoint: CE7 - Species: Fish 1000 mg/l - Duration h: 96

Solvent naphtha (petroleum), heavy arom.; Kerosine - unspecified; [A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 165 oC to 290 oC (330 oF to 554 oF).] - CAS: 64742-94-5

b) Aquatic chronic toxicity:

Endpoint: LC50 - Species: Fish 9.9 mg/l - Duration h: 96

Endpoint: EC50 - Species: Daphnia 9.9 mg/l - Duration h: 48

Endpoint: EC50 - Species: Algae 9.9 mg/l - Duration h: 72

1,2,4-trimethylbenzene - CAS: 95-63-6

b) Aquatic chronic toxicity:

Endpoint: LC50 - Species: Daphnia 6.14 mg/l - Duration h: 48

naphthalene - CAS: 91-20-3

b) Aquatic chronic toxicity:

Endpoint: LC50 - Species: Fish 0.51 mg/l - Duration h: 96

Endpoint: EC50 - Species: Daphnia 3.4 mg/l - Duration h: 48

2-ethylhexanoic acid - CAS: 149-57-5

a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish > 302 mg/l - Duration h: 48

Endpoint: EC50 - Species: Daphnia = 85.4 mg/l - Duration h: 48

Endpoint: EC50 - Species: Algae = 49.3 mg/l - Duration h: 72

#### 12.2. Persistence and degradability

None

Distillates (petroleum), hydrotreated light

Biodegradability: Readily biodegradable - Duration: 28gg - %: 69

2-ethylhexanoic acid - CAS: 149-57-5

Test: OECD 302B - Duration: 6 days - %: 85-95

#### 12.3. Bioaccumulative potential

N.A.



## Safety Data Sheet

### DIESEL ANTIGELO -20°C



- 12.4. Mobility in soil  
N.A.
- 12.5. Results of PBT and vPvB assessment  
vPvB Substances: None - PBT Substances: None
- 12.6. Endocrine disrupting properties  
No endocrine disruptor substances present in concentration  $\geq 0.1\%$
- 12.7. Other adverse effects  
None

#### SECTION 13: Disposal considerations

- 13.1. Waste treatment methods  
Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.
- Additional disposal information:  
"Use in accordance with good working practices, avoiding dispersal in the environment.  
Do not discharge into drains, ground water or water courses. Comply with current legislation on the protection of water and soil from pollution (Legislative Decree No. 152 of 3/4/2006).  
Dispose of used product and containers by handing them over to authorised companies, in accordance with the provisions of  
Legislative Decree No. 152/2006 (Consolidated Environmental Act, which replaced the Ronchi Decree) as amended.  
The used product is to be considered special waste to be classified in accordance with Directive No. 2008/98/EC on waste and related matters. Recover if possible. Send to authorised disposal plants or incineration under controlled conditions (152/2006 art. 184).  
Act in accordance with the local and national laws in force.  
Contaminated packaging must be emptied as far as possible. After cleaning, send to an authorised centre for recycling or disposal."

#### SECTION 14: Transport information



- 14.1. UN number or ID number  
ADR-UN Number: 3082  
IATA-UN Number: 3082  
IMDG-UN Number: 3082
- 14.2. UN proper shipping name  
ADR-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(naphthalene, Solvent naphtha (petroleum), heavy arom.)  
IATA-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(naphthalene, Solvent naphtha (petroleum), heavy arom.)  
IMDG-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(naphthalene, Solvent naphtha (petroleum), heavy arom.)
- 14.3. Transport hazard class(es)  
ADR-Class: 9  
ADR - Hazard identification number: 90  
IATA-Class: 9  
IATA-Label: 9  
IMDG-Class: 9  
Sea (IMO): 9
- 14.4. Packing group  
ADR-Packing Group: III

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



- |                     |     |
|---------------------|-----|
| IATA-Packing group: | III |
| IMDG-Packing group: | III |
- 14.5. Environmental hazards
- |                              |                  |
|------------------------------|------------------|
| ADR-Environmental Pollutant: | Yes              |
| IMDG-Marine pollutant:       | Marine Pollutant |
| IMDG-EmS:                    | F-A,<br>S-F      |
- 14.6. Special precautions for user
- |   |                 |
|---|-----------------|
| Rail (RID):                                       | 9               |
| ADR-Subsidiary hazards:                           | -               |
| ADR-S.P.:   | 274 335 375 601 |
| ADR-Transport category (Tunnel restriction code): | 3 (E)           |
| IATA-Passenger Aircraft:                          | 964             |
| IATA-Subsidiary hazards:                          | -               |
| IATA-Cargo Aircraft:                              | 964             |
| IATA-S.P.:  | A97 A158 A197   |
| IATA-ERG:   | 9L              |
| IMDG-Subsidiary hazards:                          | -               |
| IMDG-Stowage and handling:                        | Category A      |
| IMDG-Segregation:                                 | -               |
- 14.7. Maritime transport in bulk according to IMO instruments
- N.A.
- Limited Quantity: 5 L
- Exempted Quantity: E1

#### SECTION 15: Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
- Dir. 98/24/EC (Risks related to chemical agents at work)
- Dir. 2000/39/EC (Occupational exposure limit values)
- Regulation (EC) n. 1907/2006 (REACH)
- Regulation (EC) n. 1272/2008 (CLP)
- Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
- Regulation (EU) n. 2020/878
- Regulation (EU) n. 286/2011 (ATP 2 CLP)
- Regulation (EU) n. 618/2012 (ATP 3 CLP)
- Regulation (EU) n. 487/2013 (ATP 4 CLP)
- Regulation (EU) n. 944/2013 (ATP 5 CLP)
- Regulation (EU) n. 605/2014 (ATP 6 CLP)
- Regulation (EU) n. 2015/1221 (ATP 7 CLP)
- Regulation (EU) n. 2016/918 (ATP 8 CLP)
- Regulation (EU) n. 2016/1179 (ATP 9 CLP)
- Regulation (EU) n. 2017/776 (ATP 10 CLP)
- Regulation (EU) n. 2018/669 (ATP 11 CLP)
- Regulation (EU) n. 2018/1480 (ATP 13 CLP)
- Regulation (EU) n. 2019/521 (ATP 12 CLP)
- Regulation (EU) n. 2020/217 (ATP 14 CLP)
- Regulation (EU) n. 2020/1182 (ATP 15 CLP)
- Regulation (EU) n. 2021/643 (ATP 16 CLP)
- Regulation (EU) n. 2021/849 (ATP 17 CLP)
- Regulation (EU) n. 2022/692 (ATP 18 CLP)
- Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:
- Restrictions related to the product:
- Restriction 3
- Restrictions related to the substances contained:
- Restriction 40
- Restriction 75

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



Volatile Organic compounds - VOCs = 59.92 %  
Volatile Organic compounds - VOCs = 599.18 g/Kg  
Volatile Organic compounds - VOCs = 503.31 g/l  
Where applicable, refer to the following regulatory provisions :  
Directive 2012/18/EU (Seveso III)  
Regulation (EC) nr 648/2004 (detergents).  
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):  
Seveso III category according to Annex 1, part 1  
Product belongs to category: E2

15.2. Chemical safety assessment  
No Chemical Safety Assessment has been carried out for the mixture.  
Substances for which a Chemical Safety Assessment has been carried out:  
Distillates (petroleum), hydrotreated light  
2-ethylhexanoic acid

#### SECTION 16: Other information

Text of phrases referred to under heading 3:  
H304 May be fatal if swallowed and enters airways.  
EUH066 Repeated exposure may cause skin dryness or cracking.  
H336 May cause drowsiness or dizziness.  
H411 Toxic to aquatic life with long lasting effects.  
H226 Flammable liquid and vapour.  
H332 Harmful if inhaled.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H302 Harmful if swallowed.  
H351 Suspected of causing cancer.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.  
H360 May damage fertility or the unborn child.

Hazard class and hazard category	Code	Description
Flam. Liq. 3	2.6/3	Flammable liquid, Category 3
Acute Tox. 4	3.1/4/Inhal	Acute toxicity (inhalation), Category 4
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Asp. Tox. 1	3.10/1	Aspiration hazard, Category 1
Skin Irrit. 2	3.2/2	Skin irritation, Category 2
Eye Irrit. 2	3.3/2	Eye irritation, Category 2
Carc. 2	3.6/2	Carcinogenicity, Category 2
Repr. 1B	3.7/1B	Reproductive toxicity, Category 1B
STOT SE 3	3.8/3	Specific target organ toxicity - single exposure, Category 3

## Safety Data Sheet

### DIESEL ANTIGELO -20°C



Aquatic Acute 1	4.1/A1	Acute aquatic hazard, category 1
Aquatic Chronic 1	4.1/C1	Chronic (long term) aquatic hazard, category 1
Aquatic Chronic 2	4.1/C2	Chronic (long term) aquatic hazard, category 2

Paragraphs modified from the previous revision:

#### SECTION 9: Physical and chemical properties

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

<b>Classification according to Regulation (EC) Nr. 1272/2008</b>	<b>Classification procedure</b>
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 2, H411	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre,  
Commission of the European Communities  
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van  
Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality. It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE:	Acute Toxicity Estimate
ATEmix:	Acute toxicity Estimate (Mixtures)
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.

**Safety Data Sheet**  
**DIESEL ANTIGELO -20°C**



LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
NA:	Not applicable
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.

# Exposure Scenario, 18/07/2019

Substance identity	
Chemical name	Idrocarburi , C11- C14 , n-alcani , isoalcani, ciclici,< 2% aromatici.
CAS No.	64742-47-8
EINECS No.	926-141-6

## Table of contents

1. **ES 1** Use at industrial site
2. **ES 2** Widespread use by professional workers
3. **ES 3** Consumer use; Fuels (PC13)

1. ES 1                      Use at industrial site	
<b>1.1 TITLE SECTION</b>	
Exposure Scenario name	Fuel
Date - Version	18/07/2019 - 1.0
Life Cycle Stage	Use at industrial site
Main user group	Industrial uses
Sector(s) of use	Industrial uses (SU3)
<b>Environment Contributing Scenario</b>	
CS1 Covered by	ERC7
<b>Worker Contributing Scenario</b>	
CS2 Industrial	PROC1 - PROC2 - PROC3 - PROC8a - PROC8b - PROC16
<b>1.2 Conditions of use affecting exposure</b>	
<b>1.2. CS1: Environment Contributing Scenario: Covered by (ERC7)</b>	
Environmental release categories	Use of functional fluid at industrial site (ERC7)
<b>1.2. CS2: Worker Contributing Scenario: Industrial (PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16)</b>	
Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Use of fuels (PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16)
<b>Product (article) characteristics</b>	
<b>Physical form of product:</b> Liquid	
<b>Concentration of substance in product:</b> Covers percentage substance in the product up to 100 %.	
<b>Amount used, frequency and duration of use/exposure</b>	
<b>Duration:</b> Covers daily exposures up to 8 hours	
<b>1.3 Exposure estimation and reference to its source</b>	
N/A	
<b>1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES</b>	
<b>Guidance to check compliance with the exposure scenario:</b> 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 Widespread use by professional workers

### 2.1 TITLE SECTION

Exposure Scenario name	Fuel
Date - Version	18/07/2019 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses

#### Environment Contributing Scenario

CS1 Solids based process	ERC9a - ERC9b
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#### Worker Contributing Scenario

CS2 General use from professional operators	PROC1 - PROC2 - PROC3 - PROC8a - PROC8b - PROC16
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## 2.2 Conditions of use affecting exposure

### 2.2. CS1: Environment Contributing Scenario: Solids based process (ERC9a, ERC9b)

Environmental release categories	Widespread use of functional fluid (indoor) - Widespread use of functional fluid (outdoor) (ERC9a, ERC9b)
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### 2.2. CS2: Worker Contributing Scenario: General use from professional operators (PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16)

Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Use of fuels (PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16)
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#### Product (article) characteristics

##### Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

#### Amount used, frequency and duration of use/exposure

##### Duration:

Covers daily exposures up to 8 hours

## 2.3 Exposure estimation and reference to its source

N/A

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

### Guidance to check compliance with the exposure scenario:

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

### 3. ES 3 Consumer use; Fuels (PC13)

#### 3.1 TITLE SECTION

Exposure Scenario name	Fuel
Date - Version	18/07/2019 - 1.0
Life Cycle Stage	Consumer use
Main user group	Consumer uses
Sector(s) of use	Consumer uses (SU21)
Product Categories	Fuels (PC13)

#### Environment Contributing Scenario

CS1 Covered by	ERC9a - ERC9b
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#### Consumer Contributing Scenario

CS2 Consumer	PC13
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### 3.2 Conditions of use affecting exposure

#### 3.2. CS1: Environment Contributing Scenario: Covered by (ERC9a, ERC9b)

Environmental release categories	Widespread use of functional fluid (indoor) - Widespread use of functional fluid (outdoor) (ERC9a, ERC9b)
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#### 3.2. CS2: Consumer Contributing Scenario: Consumer (PC13)

Product Categories	Fuels (PC13)
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### 3.3 Exposure estimation and reference to its source

N/A

### 3.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

#### Guidance to check compliance with the exposure scenario:

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

# Exposure Scenario, 25/07/2019

Substance identity	
Chemical name	2-ETHYLHEXANOIC ACID
CAS No.	149-57-5
EINECS No.	205-743-6

## Table of contents

1. **ES 1**      Use at industrial site
2. **ES 2**      Widespread use by professional workers

1. ES 1 Use at industrial site	
<b>1.1 TITLE SECTION</b>	
Exposure Scenario name	Hydraulic (functional) fluids
Date - Version	25/07/2019 - 1.0
Life Cycle Stage	Use at industrial site
Main user group	Industrial uses
Sector(s) of use	Industrial uses (SU3)
<b>Environment Contributing Scenario</b>	
CS1 Covered by	ERC7
<b>Worker Contributing Scenario</b>	
CS2 Industrial	PROC1
CS3 Industrial	PROC2
CS4 Industrial	PROC3
CS5 Industrial	PROC4
CS6 Industrial	PROC8a
CS7 Industrial	PROC8b
CS8 Industrial	PROC9
<b>1.2 Conditions of use affecting exposure</b>	
<b>1.2. CS1: Environment Contributing Scenario: Covered by (ERC7)</b>	
Environmental release categories	Use of functional fluid at industrial site (ERC7)
<i>Amount used, frequency and duration of use (or from service life)</i>	
<b>Amounts used:</b> Annual amount per site 200 t(onnes)/year Daily amount per site 2 t	
<b>Maximum allowable site tonnage (MSafe):</b> 5282 kg/day	
<b>Release type:</b> Continuous release	
<b>Emission days:</b> 100 days per year	
<i>Conditions and measures related to sewage treatment plant</i>	
<b>STP type:</b> Municipal Sewage Treatment Plant Water - minimum efficiency of: = 87.5 %	
<b>STP effluent (m³/day):</b> 2000	
<i>Conditions and measures related to treatment of waste (including article waste)</i>	
<b>Waste treatment</b> External recovery and recycling of waste should comply with applicable local and/or national regulations.	
<i>Other conditions affecting environmental exposure</i>	
<b>Local marine water dilution factor:</b> 100 <b>Local freshwater dilution factor:</b> 10 <b>Receiving surface water flow:</b> 18000 m³/day	

## 1.2. CS2: Worker Contributing Scenario: Industrial (PROC1)

Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)
<i>Product (article) characteristics</i>	
<b>Vapour pressure:</b> < 5 hPa	
<b>Concentration of substance in product:</b> Covers percentage substance in the product up to 25 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
<b>Duration:</b> Exposure duration < 8 h	
<b>Frequency:</b> Covers exposure up to 5 days per week	
<i>Other conditions affecting worker exposure</i>	
Indoor use	
<b>Body parts exposed:</b> Palm of one hand	
<b>Additional conditions human health</b> Covers skin contact area up to 240 cm <sup>2</sup>	

## 1.2. CS3: Worker Contributing Scenario: Industrial (PROC2)

Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)		
<i>Product (article) characteristics</i>			
<b>Vapour pressure:</b> < 5 hPa			
<b>Concentration of substance in product:</b> Covers percentage substance in the product up to 25 %.			
<i>Amount used, frequency and duration of use/exposure</i>			
<b>Duration:</b> Exposure duration < 8 h			
<b>Frequency:</b> Covers exposure up to 5 days per week			
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>			
<b>Personal protection</b>			
<table><tr><td>Wear suitable gloves tested to EN374.</td><td>Dermal - minimum efficiency of: &gt; 95 %</td></tr></table>		Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: > 95 %
Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: > 95 %		
<i>Other conditions affecting worker exposure</i>			
Indoor use			
<b>Body parts exposed:</b> Assumes that potential dermal contact is limited to hands.			
<b>Additional conditions human health</b> Covers skin contact area up to 480 cm <sup>2</sup>			

## 1.2. CS4: Worker Contributing Scenario: Industrial (PROC3)

Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)
<i>Product (article) characteristics</i>	

**Vapour pressure:**

< 5 hPa

**Concentration of substance in product:**

Covers percentage substance in the product up to 25 %.

***Amount used, frequency and duration of use/exposure*****Duration:**

Exposure duration < 8 h

**Frequency:**

Covers exposure up to 5 days per week

***Technical and organisational conditions and measures*****Technical and organisational measures**

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

***Conditions and measures related to personal protection, hygiene and health evaluation*****Personal protection**

Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: > 95 %
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***Other conditions affecting worker exposure***

Indoor use

**Body parts exposed:**

Palm of one hand

**Additional conditions human health**

Covers skin contact area up to 240 cm<sup>2</sup>

**1.2. CS5: Worker Contributing Scenario: Industrial (PROC4)****Process Categories**

Chemical production where opportunity for exposure arises (PROC4)

***Product (article) characteristics*****Vapour pressure:**

< 5 hPa

**Concentration of substance in product:**

Covers percentage substance in the product up to 25 %.

***Amount used, frequency and duration of use/exposure*****Duration:**

Exposure duration < 8 h

**Frequency:**

Covers exposure up to 5 days per week

***Technical and organisational conditions and measures*****Technical and organisational measures**

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

***Conditions and measures related to personal protection, hygiene and health evaluation*****Personal protection**

Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: > 95 %
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***Other conditions affecting worker exposure***

Indoor use

**Body parts exposed:**

Assumes that potential dermal contact is limited to hands.

#### Additional conditions human health

Covers skin contact area up to 480 cm<sup>2</sup>

### 1.2. CS6: Worker Contributing Scenario: Industrial (PROC8a)

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
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#### *Product (article) characteristics*

##### Vapour pressure:

< 5 hPa

##### Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

#### *Amount used, frequency and duration of use/exposure*

##### Duration:

Exposure duration < 4 h

##### Frequency:

Covers exposure up to 5 days per week

#### *Technical and organisational conditions and measures*

##### Technical and organisational measures

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

#### *Conditions and measures related to personal protection, hygiene and health evaluation*

##### Personal protection

Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: > 95 %
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#### *Other conditions affecting worker exposure*

Indoor use

##### Body parts exposed:

Assumes that potential dermal contact is limited to hands.

#### Additional conditions human health

Covers skin contact area up to 960 cm<sup>2</sup>

### 1.2. CS7: Worker Contributing Scenario: Industrial (PROC8b)

Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
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#### *Product (article) characteristics*

##### Vapour pressure:

< 5 hPa

##### Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

#### *Amount used, frequency and duration of use/exposure*

##### Duration:

Exposure duration < 8 h

##### Frequency:

Covers exposure up to 5 days per week

#### *Technical and organisational conditions and measures*

##### Technical and organisational measures

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

#### *Conditions and measures related to personal protection, hygiene and health evaluation*



## Personal protection

Wear suitable gloves tested to EN374.

Dermal - minimum efficiency of: > 95 %

## Other conditions affecting worker exposure

Indoor use

### Body parts exposed:

Assumes that potential dermal contact is limited to hands.

### Additional conditions human health

Covers skin contact area up to 960 cm<sup>2</sup>

## 1.2. CS8: Worker Contributing Scenario: Industrial (PROC9)

### Process Categories

Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

## Product (article) characteristics

### Vapour pressure:

< 5 hPa

### Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

## Amount used, frequency and duration of use/exposure

### Duration:

Exposure duration < 8 h

### Frequency:

Covers exposure up to 5 days per week

## Technical and organisational conditions and measures

### Technical and organisational measures

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

## Conditions and measures related to personal protection, hygiene and health evaluation

## Personal protection

Wear suitable gloves tested to EN374.

Dermal - minimum efficiency of: > 95 %

## Other conditions affecting worker exposure

Indoor use

### Body parts exposed:

Assumes that potential dermal contact is limited to hands.

### Additional conditions human health

Covers skin contact area up to 480 cm<sup>2</sup>

## 1.3 Exposure estimation and reference to its source

### 1.3. CS1: Environment Contributing Scenario: Covered by (ERC7)

Release route	Release rate	Release estimation method
Air	1 %	N/A
Water	1 %	N/A

soil	1 %	N/A
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protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.13 mg/L	N/A	0.35
freshwater sediment	2.21 mg/kg bw/day	N/A	0.35
marine water	0.01 mg/L	N/A	0.35
marine sediment	0.22 mg/kg bw/day	N/A	0.35
soil	0.39 mg/kg bw/day	N/A	0.37
Sewage treatment plant	1.25 mg/L	N/A	0.02

### 1.3. CS2: Worker Contributing Scenario: Industrial (PROC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.04 mg/m <sup>3</sup>	N/A	0.003
dermal, systemic, long-term	0.02 mg/kg bw/day	N/A	0.01

### 1.3. CS3: Worker Contributing Scenario: Industrial (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	3.61 mg/m <sup>3</sup>	N/A	0.26
dermal, systemic, long-term	0.04 mg/kg bw/day	N/A	0.02

### 1.3. CS4: Worker Contributing Scenario: Industrial (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	7.75 mg/m <sup>3</sup>	N/A	0.54
dermal, systemic, long-term	0.02 mg/kg bw/day	N/A	0.01

### 1.3. CS5: Worker Contributing Scenario: Industrial (PROC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	5.41 mg/m <sup>3</sup>	N/A	0.39
dermal, systemic, long-term	0.21 mg/kg bw/day	N/A	0.1

### 1.3. CS6: Worker Contributing Scenario: Industrial (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	6.49 mg/m <sup>3</sup>	N/A	0.46
dermal, systemic, long-term	0.41 mg/kg bw/day	N/A	0.21

### 1.3. CS7: Worker Contributing Scenario: Industrial (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	5.41 mg/m <sup>3</sup>	N/A	0.39
dermal, systemic, long-term	0.41 mg/kg bw/day	N/A	0.21

### 1.3. CS8: Worker Contributing Scenario: Industrial (PROC9)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	5.41 mg/m <sup>3</sup>	N/A	0.39
dermal, systemic, long-term	0.21 mg/kg bw/day	N/A	0.1

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

### Guidance to check compliance with the exposure scenario:

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 Widespread use by professional workers

### 2.1 TITLE SECTION

Exposure Scenario name	Hydraulic (functional) fluids
Date - Version	25/07/2019 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)

#### Environment Contributing Scenario

CS1 Covered by	ERC9a - ERC9b
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#### Worker Contributing Scenario

CS2 General use from professional operators	PROC1
CS3 General use from professional operators	PROC2
CS4 General use from professional operators	PROC3
CS5 General use from professional operators	PROC8a
CS6 General use from professional operators	PROC9
CS7 General use from professional operators	PROC20

## 2.2 Conditions of use affecting exposure

### 2.2. CS1: Environment Contributing Scenario: Covered by (ERC9a, ERC9b)

Environmental release categories	Widespread use of functional fluid (indoor) - Widespread use of functional fluid (outdoor) (ERC9a, ERC9b)
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#### *Amount used, frequency and duration of use (or from service life)*

##### Amounts used:

Annual site tonnage 100 t(tonnes)/year

**Maximum allowable site tonnage (MSafe):** 21.8 kg/day

**Release type:** Continuous release

**Emission days:** 100 days per year

#### *Conditions and measures related to sewage treatment plant*

##### STP type:

Municipal Sewage Treatment Plant

Water - minimum efficiency of: = 87.5 %

**STP effluent (m<sup>3</sup>/day):** 2000

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

##### Waste treatment

External treatment and disposal 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

**Receiving surface water flow:** 18000 m<sup>3</sup>/day

### 2.2. CS2: Worker Contributing Scenario: General use from professional operators (PROC1)

<b>Process Categories</b>	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)
<i>Product (article) characteristics</i>	
<b>Vapour pressure:</b> < 5 hPa	
<b>Concentration of substance in product:</b> Covers percentage substance in the product up to 25 %.	
<b>Additional conditions human health</b> Covers skin contact area up to 240 cm <sup>2</sup>	
<i>Amount used, frequency and duration of use/exposure</i>	
<b>Duration:</b> Exposure duration < 8 h	
<b>Frequency:</b> Use frequency 5 days per week	
<i>Technical and organisational conditions and measures</i>	
<b>Technical and organisational measures</b> Provide a good standard of controlled ventilation (5 to 10 air changes per hour).	
<i>Other conditions affecting worker exposure</i>	
Indoor use <b>Body parts exposed:</b> Palm of one hand	
<b>2.2. CS3: Worker Contributing Scenario: General use from professional operators (PROC2)</b>	
<b>Process Categories</b>	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)
<i>Product (article) characteristics</i>	
<b>Vapour pressure:</b> < 5 hPa	
<b>Concentration of substance in product:</b> Covers percentage substance in the product up to 25 %.	
<b>Additional conditions human health</b> Covers skin contact area up to 480 cm <sup>2</sup>	
<i>Amount used, frequency and duration of use/exposure</i>	
<b>Duration:</b> Exposure duration < 8 h	
<b>Frequency:</b> Use frequency 5 days per week	
<i>Technical and organisational conditions and measures</i>	
<b>Technical and organisational measures</b> Provide a good standard of controlled ventilation (5 to 10 air changes per hour).	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
<b>Personal protection</b>	
Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 90 %
<i>Other conditions affecting worker exposure</i>	
Indoor use <b>Body parts exposed:</b>	

Assumes that potential dermal contact is limited to hands.

## 2.2. CS4: Worker Contributing Scenario: General use from professional operators (PROC3)

Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)
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### *Product (article) characteristics*

**Vapour pressure:**

< 5 hPa

**Concentration of substance in product:**

Covers percentage substance in the product up to 25 %.

**Additional conditions human health**

Covers skin contact area up to 240 cm<sup>2</sup>

### *Amount used, frequency and duration of use/exposure*

**Duration:**

Exposure duration < 8 h

**Frequency:**

Use frequency 5 days per week

### *Technical and organisational conditions and measures*

**Technical and organisational measures**

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

### *Conditions and measures related to personal protection, hygiene and health evaluation*

**Personal protection**

Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 90 %
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### *Other conditions affecting worker exposure*

Indoor use

**Body parts exposed:**

Palm of one hand

## 2.2. CS5: Worker Contributing Scenario: General use from professional operators (PROC8a)

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
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### *Product (article) characteristics*

**Vapour pressure:**

< 5 hPa

**Concentration of substance in product:**

Covers percentage substance in the product up to 25 %.

**Additional conditions human health**

Covers skin contact area up to 960 cm<sup>2</sup>

### *Amount used, frequency and duration of use/exposure*

**Duration:**

Exposure duration < 1 h

**Frequency:**

Use frequency 5 days per week

### *Technical and organisational conditions and measures*

**Technical and organisational measures**

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

## Conditions and measures related to personal protection, hygiene and health evaluation

### Personal protection

Wear suitable gloves tested to EN374.

Dermal - minimum efficiency of: 90 %

### Other conditions affecting worker exposure

Indoor use

#### Body parts exposed:

Assumes that potential dermal contact is limited to hands.

## 2.2. CS6: Worker Contributing Scenario: General use from professional operators (PROC9)

### Process Categories

Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

### Product (article) characteristics

#### Vapour pressure:

< 5 hPa

#### Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

#### Additional conditions human health

Covers skin contact area up to 480 cm<sup>2</sup>

### Amount used, frequency and duration of use/exposure

#### Duration:

Exposure duration < 4 h

#### Frequency:

Use frequency 5 days per week

### Technical and organisational conditions and measures

#### Technical and organisational measures

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

## Conditions and measures related to personal protection, hygiene and health evaluation

### Personal protection

Wear suitable gloves tested to EN374.

Dermal - minimum efficiency of: 90 %

### Other conditions affecting worker exposure

Indoor use

#### Body parts exposed:

Assumes that potential dermal contact is limited to hands.

## 2.2. CS7: Worker Contributing Scenario: General use from professional operators (PROC20)

### Process Categories

Use of functional fluids in small devices (PROC20)

### Product (article) characteristics

#### Vapour pressure:

< 5 hPa

#### Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

#### Additional conditions human health

Covers skin contact area up to 480 cm<sup>2</sup>



### *Amount used, frequency and duration of use/exposure*

**Duration:**

Exposure duration < 8 h

**Frequency:**

Use frequency 5 days per week

### *Technical and organisational conditions and measures*

**Technical and organisational measures**

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

### *Conditions and measures related to personal protection, hygiene and health evaluation*

**Personal protection**

Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 90 %
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### *Other conditions affecting worker exposure*

Indoor use

**Body parts exposed:**

Assumes that potential dermal contact is limited to hands.

## 2.3 Exposure estimation and reference to its source

### 2.3. CS1: Environment Contributing Scenario: Covered by (ERC9a, ERC9b)

Release route	Release rate	Release estimation method
Air	1 %	N/A
Water	0.5 %	N/A
soil	0.1 %	N/A

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.0002 mg/L	N/A	0.0006
freshwater sediment	0.004 mg/kg bw/day	N/A	0.0006
marine water	2E-05 mg/L	N/A	0.0006
freshwater sediment	0.0004 mg/kg bw/day	N/A	0.0006
Agricultural soil	0.0002 mg/kg bw/day	N/A	0.0002
Sewage treatment plant	6E-05 mg/L	N/A	< 1E-06

### 2.3. CS2: Worker Contributing Scenario: General use from professional operators (PROC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.04 mg/m <sup>3</sup>	N/A	0.003
dermal, systemic, long-term	0.02 mg/kg bw/day	N/A	0.01

### 2.3. CS3: Worker Contributing Scenario: General use from professional operators (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	5.41 mg/m <sup>3</sup>	N/A	0.39
dermal, systemic, long-term	0.08 mg/kg bw/day	N/A	0.04

### 2.3. CS4: Worker Contributing Scenario: General use from professional operators (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	7.57 mg/m <sup>3</sup>	N/A	0.54
dermal, systemic, long-term	0.04 mg/kg bw/day	N/A	0.02

### 2.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	5.41 mg/m <sup>3</sup>	N/A	0.39
dermal, systemic, long-term	0.82 mg/kg bw/day	N/A	0.41

### 2.3. CS6: Worker Contributing Scenario: General use from professional operators (PROC9)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	6.49 mg/m <sup>3</sup>	N/A	0.46
dermal, systemic, long-term	0.41 mg/kg bw/day	N/A	0.21

### 2.3. CS7: Worker Contributing Scenario: General use from professional operators (PROC20)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	0.1 mg/kg bw/day	N/A	0.05

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

### Guidance to check compliance with the exposure scenario:

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