



TotalEnergies

# SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by  
Commission Regulation (EU) 2020/878

## HBF 4 OEM+

SDS #: 085644

previous revision date : 2022/09/08

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

#### 1.1 Product identifier

Product name : HBF 4 OEM+  
UFI : DW5N-67NR-3008-P87D

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

Identified uses
Formulation additives, lubricants and greases - Industrial
General use of lubricants and greases in vehicles or machinery - Industrial
General use of lubricants and greases in vehicles or machinery - Professional
Brake fluids.
Functional fluids

#### 1.3 Details of the supplier of the safety data sheet

TotalEnergies Lubrifiants  
562 Avenue du Parc de L'île  
92029 Nanterre Cedex FRANCE  
Tél: +33 (0)1 41 35 40 00  
Fax: +33 (0)1 41 35 84 71  
rm.msds-lubs@totalenergies.com

ТоталЕнерджис Маркетинг България ЕООД  
Бул.България 69  
Инфинити тауър  
1404 София България  
Тел: +359 2 904 7000  
Факс: +359 2 904 7120

TotalEnergies Ukraine  
172, Antonovycha str., Kiev, 03150  
Tel: +38 (044) 351-19-40  
info-ua@total.com

info-bulgaria@totalenergies.com  
info-ua@totalenergies.com

#### Contact

H.S.E

#### 1.4 Emergency telephone number

##### National advisory body/Poison Center

Telephone number : Bulgarian National Toxicological Information Center: +359 2 9154 233  
Ukraine  
Ambulance Hospital tel. +38 (044) 527 69 08, 02660, Kyiv, str. Bratislavskaya, 3  
(Ukrainian Military Medical Academy, Department of Military Toxicology and  
Radiation Medicine)

#### Supplier



Telephone number : Emergency phone: +44 1235 239670

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Repr. 2, H361d

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard pictograms** :



**Signal word** : Warning

**Hazard statements** : H361d - Suspected of damaging the unborn child.

#### **Precautionary statements**

**General** : P101 - If medical advice is needed, have product container or label at hand.  
P102 - Keep out of reach of children.  
P103 - Read carefully and follow all instructions.

**Prevention** : P280 - Wear protective gloves, protective clothing and eye or face protection.

**Response** : Not applicable.

**Storage** : P405 - Store locked up.

**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Contains** : COCOC1=CC=C(C=C1)OCCOC2=CC=CC=C2 [2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate

**Supplemental label elements** : Not applicable.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### 2.3 Other hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration  $\geq 0,1$  %.

This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACH Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.

**Other hazards which do not result in classification** : Hazard of slipping on spilled product.

**SECTION 3: Composition/information on ingredients****3.2 Mixtures** : Mixture

Product/substance	Identifiers	% (w/w)	Classification	Specific Conc. Limits, M-factors and ATEs	Type
tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	REACH #: 01-2119462824-33 EC: 250-418-4 CAS: 30989-05-0	≥50 - ≤75	Repr. 2, H361d	-	[1]
1,1'-iminodipropan-2-ol	REACH #: 01-2119475444-34 EC: 203-820-9 CAS: 110-97-4 Index: 603-083-00-7	<10	Eye Irrit. 2, H319	-	[1]
diethylene glycol	REACH #: 01-2119457857-21 EC: 203-872-2 CAS: 111-46-6	≤10	Acute Tox. 4, H302  <b>See Section 16 for the full text of the H statements declared above.</b>	ATE [Oral] = 500 mg/kg	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

**SECTION 4: First aid measures****4.1 Description of first aid measures**

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.



- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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

##### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

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

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous combustion products** : carbon monoxide  
carbon dioxide  
nitrogen oxides

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.



- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### 6.3 Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

- 6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities



Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. room temperature

### 7.3 Specific end use(s)

**Recommendations** : Not available.

**Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/substance	Exposure limit values
diethylene glycol	<b>Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021).</b> Limit value 8 hours: 10 mg/m <sup>3</sup> 8 hours.

**Reportable hazardous constituent(s) contained in UVCB and/or multi-constituent substance(s) complying with the classification criteria and/or with an exposure limit (OEL)**

No exposure limit value known.

#### Biological Limit Values (BLV)

No exposure indices known.

**Recommended monitoring procedures** : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Advisory OEL** : No known significant effects or critical hazards.

#### DNELs/DMELs

Product/substance	Type	Exposure	Value	Population	Effects
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	DNEL	Long term Dermal	8.3 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	29.1 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	4.1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	7.2 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Oral	4.1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	4.1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	4.1 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	7.2 mg/m <sup>3</sup>	General population	Systemic



1,1'-iminodipropan-2-ol	DNEL	Long term Dermal	8.3 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	29.1 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Dermal	120 µg/cm <sup>2</sup>	Workers	Local
	DNEL	Long term Dermal	5 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	6.4 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Oral	1.3 mg/kg bw/day	General population	Systemic
diethylene glycol	DNEL	Long term Inhalation	3.9 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Dermal	6.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	21 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	43 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	44 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Inhalation	12 mg/m <sup>3</sup>	General population	Local
	DNEL	Long term Inhalation	12 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Inhalation	60 mg/m <sup>3</sup>	Workers	Local

**PNECs**

Product/ingredient name	Compartment Detail	Name	Method Detail
tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	Fresh water sediment	760 µg/kg dwt	-
	Marine water sediment	76 µg/kg dwt	-
	Soil	28.3 µg/kg dwt	-
	Sewage Treatment Plant	100 mg/l	-
	Fresh water	211.2 µg/l	-
1,1'-iminodipropan-2-ol	Marine water	21.12 µg/l	-
	Fresh water	0.2777 mg/l	-
	Marine water	0.02777 mg/l	-
	Fresh water sediment	2.33 mg/kg dwt	-
	Marine water sediment	0.233 mg/kg dwt	-
diethylene glycol	Soil	0.303 mg/kg dwt	-
	Sewage Treatment Plant	15000 mg/l	-
	Fresh water	10 mg/l	-
	Marine water	1 mg/l	-
	Fresh water sediment	20.9 mg/kg dwt	-
	Soil	1.53 mg/kg dwt	-
	Sewage Treatment Plant	199.5 mg/l	-
	Marine water sediment	2.09 mg/kg dwt	-

**8.2 Exposure controls**

**Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Individual protection measures**



- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. EN 166
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.  
butyl rubber  
nitrile rubber  
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.  
In case of prolonged contact with the product, it is recommended to wear gloves complying with ISO 21420 and EN 374 standards, protecting at least for 480 minutes and having a thickness of 0,38 mm at least. These values are indicative only. The level of protection is provided by the material of the glove, its technical characteristics, its resistance to the chemicals to be handled, the appropriateness of its use and its replacement frequency
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator with combination filter for vapor/particulate Warning ! filters have a limited use duration The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses None under normal use conditions Wear a full-face respirator conforming to EN136 with type A/P2 filter or better.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature (20°C / 68°F) and pressure (1013 hPa) unless otherwise indicated

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Color** : Yellow.
- Odor** : Characteristic.
- pH** : 7 to 8.5 [Conc. (% w/w): 50%]



Melting point/freezing point	: <-70°C
Initial boiling point and boiling range	: >260°C
Flash point	: Closed cup: 134°C [Closed cup]
Flammability	: Non-flammable.
Lower and upper explosion limit	: Lower: 1.5%
Vapor pressure	: <0.1 kPa
Vapor density	: Not available.
Relative density	: 1.065 to 1.085
Density	: 1.065 to 1.085 g/cm <sup>3</sup> [20°C]
Solubility(ies)	:

Media	Result
water	Soluble

Miscible with water	: Yes.
Partition coefficient: n-octanol/ water	: Not applicable.
Auto-ignition temperature	: >200°C
Decomposition temperature	: 360°C
Viscosity	: Kinematic: 15 to 17 mm <sup>2</sup> /s
<b>Particle characteristics</b>	
Median particle size	: Not applicable.

## 9.2 Other information

No other relevant physical and chemical parameters for the safe use of the product

## SECTION 10: Stability and reactivity

10.1 Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Stable under recommended storage and handling conditions (see Section 7).
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
10.5 Incompatible materials	: No specific data.
10.6 Hazardous decomposition products	: carbon monoxide carbon dioxide nitrogen oxides

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Product/substance	Result	Species	Dose	Exposure	Test
bis[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	LD50 Dermal	Rat	>2000 mg/kg	-	402
	LD50 Oral	Rat	>2000 mg/kg	-	401
1,1'-iminodipropan-2-ol	LC50 Inhalation Vapor	Rat	20.1 mg/l	4 hours	-
	LD50 Dermal	Rabbit	8000 mg/kg	-	-
diethylene glycol	LD50 Oral	Rat	4765 mg/kg	-	-
	LD50 Oral	Rat	6000 mg/kg	-	-
	LD50 Dermal	Rabbit	11890 mg/kg	-	-
	LD50 Dermal	Rabbit	13300 mg/kg	-	-
	LD50 Oral	Rat	12000 mg/kg	-	-
	LD50 Oral	Rat	500 mg/kg ATE value Category 4	-	TEPA and OECD

**Acute toxicity estimates**

Product/substance	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
HBF 4 OEM+	5050.5	N/A	N/A	N/A	N/A
1,1'-iminodipropan-2-ol	4765	8000	N/A	20.1	N/A
diethylene glycol	500	11890	N/A	N/A	N/A

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Irritation/Corrosion**

Product/substance	Result	Species	Score	Exposure	Test
1,1'-iminodipropan-2-ol	Eyes - Severe irritant	Rabbit	-	50 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
diethylene glycol	Skin - Mild irritant	Rabbit	-	500 mg	-

**Conclusion/Summary**

**Skin** : Based on available data, the classification criteria are not met.

**Eyes** : Based on available data, the classification criteria are not met.

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

**Sensitization**

Product/substance	Route of exposure	Species	Result
diethylene glycol	skin	Guinea pig	Not sensitizing

**Conclusion/Summary**

**Skin** : Based on available data, the classification criteria are not met.

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

**Mutagenicity**



Product/substance	Test	Experiment	Result
diethylene glycol	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Cell: Somatic	Negative
	OECD 473 <i>In vitro</i> Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Carcinogenicity**

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Reproductive toxicity**

Product/substance	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
diethylene glycol	Negative	Negative	Negative	Mouse - Male, Female	Oral	-
	Negative	Negative	Negative	Rat - Male, Female	Oral	-

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Teratogenicity**

Product/substance	Result	Species	Dose	Exposure
diethylene glycol	Negative - Oral	Rat	-	-

**Conclusion/Summary** : Based on available data, the classification criteria are met.

**Specific target organ toxicity (single exposure)**

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Specific target organ toxicity (repeated exposure)**

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Aspiration hazard**

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Information on the likely routes of exposure** : Not available.

**Potential acute health effects**

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

**Symptoms related to the physical, chemical and toxicological characteristics**

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations



- Skin contact** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
reduced fetal weight  
increase in fetal deaths  
skeletal malformations

**Delayed and immediate effects and also chronic effects from short and long term exposure****Short term exposure**

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

**Long term exposure**

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

**Potential chronic health effects**

Product/substance	Result	Species	Dose	Exposure
diethylene glycol	Sub-acute NOAEL Oral	Rat - Male, Female	936 mg/kg	-
	Sub-chronic NOAEL Oral	Rat - Male, Female	300 mg/kg	-

- Conclusion/Summary** : Not available.
- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : Suspected of damaging the unborn child.

**11.2 Information on other hazards****11.2.1 Endocrine disrupting properties**

This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACh Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.

**11.2.2 Other information**

Not available.

**SECTION 12: Ecological information****12.1 Toxicity**

Product/substance	Result	Species	Exposure	Test
bis[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	Acute EC50 >224 mg/l	Algae - <i>Pseudokirchneriella subcapitata</i>	72 hours	201
	Acute EC50 >211 mg/l	Crustaceans - <i>Daphnia magna</i>	48 hours	202
	Acute LC50 >222.2 mg/l	Fish - <i>Oncorhynchus mykiss</i>	96 hours	203
1,1'-iminodipropan-2-ol	Chronic NOEC >224 mg/l	Algae	72 hours	OECD 201
	Acute EC50 339 mg/l	Algae - <i>Desmodesmus</i>	72 hours	-



diethylene glycol	Acute EC50 278 mg/l	<i>subspicatus</i> Crustaceans - <i>Daphnia magna</i>	48 hours	-
	Acute IC50 15000 mg/l	Micro-organism - <i>Pseudomonas putida</i>	17 hours	-
	Acute LC50 1466 mg/l	Fish - <i>Danio rerio</i>	96 hours	OECD 203
	Chronic EC10 219 mg/l	Algae - <i>Desmodesmus subspicatus</i>	72 hours	-
	Acute EC50 >100 mg/l	Algae	72 hours	-
	Acute EC50 62600 mg/l	Crustaceans - <i>Daphnia magna</i>	48 hours	-
	Acute LC50 75200000 µg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours	-
Chronic NOEC >100 mg/l	Algae	72 hours	-	

**Conclusion/Summary** : Not available.

## 12.2 Persistence and degradability

Product/substance	Test	Result	Dose	Inoculum
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate 1,1'-iminodipropan-2-ol diethylene glycol	OECD 301A	>70 % - Readily - 10 days	-	Activated sludge
	OECD 301F	72 % - Readily - 28 days	-	Activated sludge
	OECD 301B	75 % - Readily - 28 days	-	Activated sludge

**Conclusion/Summary** : Not available.

Product/substance	Aquatic half-life	Photolysis	Biodegradability
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	-	-	Readily
1,1'-iminodipropan-2-ol	-	-	Readily
diethylene glycol	-	-	Readily

## 12.3 Bioaccumulative potential

Product/substance	LogK <sub>ow</sub>	BCF	Potential
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	1	-	Low
1,1'-iminodipropan-2-ol	-0.79	-	Low
diethylene glycol	-1.98	100	Low

## 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

**Mobility in soil** : Given its physical and chemical characteristics, the product generally shows low soil mobility Loss by evaporation is limited Soluble in water

## 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration  $\geq 0,1$  %.

## 12.6 Endocrine disrupting properties

This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACH Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.



## 12.7 Other adverse effects

No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : Yes.  
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: 16 01 13\*

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	ADN	IMDG	ICAO/IATA
<b>14.1 UN number or ID number</b>	Not regulated.	Not regulated.	Not regulated.	Not regulated.
<b>14.2 UN proper shipping name</b>	-	-	-	-
<b>14.3 Transport hazard class(es)</b>	-	-	-	-
<b>14.4 Packing group</b>	-	-	-	-
<b>14.5 Environmental hazards</b>	No.	No.	No.	No.

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Maritime transport in bulk according to IMO instruments** : Not available.

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU Regulation (EC) No. 1907/2006 (REACH)****Annex XIV - List of substances subject to authorization****Annex XIV**

None of the components are listed.

**Substances of very high concern**

None of the components are listed.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles****Other EU regulations**

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

**Explosive precursors** : Not applicable.

**Ozone depleting substances (1005/2009/EU)**

Not listed.

**Prior Informed Consent (PIC) (649/2012/EU)**

Not listed.

**Persistent Organic Pollutants**

Not listed.

**Seveso Directive**

This product is not controlled under the Seveso Directive.

**National regulations****International regulations****Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

**Montreal Protocol**

Not listed.

**Stockholm Convention on Persistent Organic Pollutants**

Not listed.

**Rotterdam Convention on Prior Informed Consent (PIC)**



Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

**LU - Luxembourg prohibited chemicals in the workplace**

Not listed.

**Inventory list**

<b>Australia inventory (AIIIC)</b>	: All components are listed or exempted.
<b>Canada inventory (DSL/NDSL)</b>	: <input checked="" type="checkbox"/> At least one component is not listed in DSL but all such components are listed in NDSL.
<b>China inventory (IECSC)</b>	: All components are listed or exempted.
<b>Europe inventory (EC)</b>	: All components are listed or exempted.
<b>Japan inventory</b>	: <input checked="" type="checkbox"/> <b>Japan inventory (CSCL)</b> : All components are listed or exempted. <b>Japan inventory (ISHL)</b> : Not determined.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>	: All components are listed or exempted.
<b>Philippines inventory (PICCS)</b>	: All components are listed or exempted.
<b>Korea inventory (KECI)</b>	: At least one component is not listed.
<b>Taiwan Chemical Substances Inventory (TCSI)</b>	: All components are listed or exempted.
<b>Thailand inventory</b>	: Not determined.
<b>Turkey inventory</b>	: <input checked="" type="checkbox"/> Not determined.
<b>United States inventory (TSCA 8b)</b>	: All components are listed or exempted.
<b>Vietnam inventory</b>	: <input checked="" type="checkbox"/> Not determined.

The information stated in this section relates solely to the conformity of the chemical product with the countries Inventories. The information used to confirm the inventory status of this product may be based on additional data to the chemical composition shown in Section 3. Other regulations may apply for importation or marketing authorizations.

**15.2 Chemical Safety Assessment** : See exposure scenarios

**SECTION 16: Other information**

Indicates information that has changed from previously issued version.

<b>Abbreviations and acronyms</b>	: ACGIH = American Conference of Governmental Industrial Hygienists ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] DNEL = Derived No Effect Level DMEL = Derived Minimal Effect Level DMSO = Dimethyl Sulfoxide EL50 = median Effective Loading EUH statement = CLP-specific Hazard statement HSE = Health, Safety and Environment IC50 = Half maximal inhibitory concentration IDHL = Immediately dangerous to life or health LC50 = Median lethal concentration LD50 = Median lethal dose LL50 = median Lethal Loading LogPow = logarithm of the octanol/water partition coefficient N/A = Not available NIOSH = National Institute of Occupational Safety and Health NOAEL = No Observed Adverse Effect Level
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NOEC No Observed Effect Concentration  
 NOEL = No Observed Effect Level  
 NOELR = No observed Effect Loading Rate  
 OECD = Organisation for Economic Co-operation and Development  
 OEL = Occupational Exposure Limit  
 PBT = Persistent, Bioaccumulative and Toxic  
 PNEC = Predicted No Effect Concentration  
 QSAR = Quantitative Structure–Activity Relationship  
 REL = Recommended Exposure Limit  
 STEL = Short Term Exposure Limit  
 TLV = Threshold Limit Value  
 TWA = Time Weight Average  
 VOC = Volatile Organic Compound  
 vPvB = Very Persistent and Very Bioaccumulative  
 Unique Formula Identifier (UFI)  
 UVCB Substance of unknown or Variable composition, Complex reaction products or Biological material

**Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Classification	Justification
Repr. 2, H361d	Calculation method

**Full text of abbreviated H statements**

H302 H319 H361d	Harmful if swallowed. Causes serious eye irritation. Suspected of damaging the unborn child.
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**Full text of classifications [CLP/GHS]**

Acute Tox. 4 Eye Irrit. 2 Repr. 2	ACUTE TOXICITY - Category 4 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 TOXIC TO REPRODUCTION - Category 2
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Date of revision : 2024/04/17  
 previous revision date : 2022/09/08  
 Version : 3

**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

**Product definition** : Mixture  
**Code** : 085644  
**Product name** : HBF 4 OEM+

### Section 1 - Title

**Short title of the exposure scenario** : Formulation additives, lubricants and greases - Industrial

**List of use descriptors** : **Identified use name:** Formulation additives, lubricants and greases - Industrial  
**Process Category:** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15  
**Sector of end use:** SU03, SU10  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC02

**Health Contributing scenarios** : **General measures applicable to all activities**  
**General exposures Use in contained systems Elevated temperature** - PROC02  
**Mixing operations Closed systems Batch processes at elevated temperatures** - PROC03  
**Mixing operations Open systems Batch processes at elevated temperatures** - PROC04, PROC05  
**Mixing operations (open systems)** - PROC04, PROC05  
**Process sampling** - PROC04, PROC08b  
**Bulk transfers Dedicated facility** - PROC08b  
**Drum/batch transfers Dedicated facility** - PROC08b  
**Drum/batch transfers Non-dedicated facility** - PROC08a  
**Equipment cleaning and maintenance** - PROC08a, PROC08b  
**Drum and small package filling** - PROC09  
**Laboratory activities** - PROC15  
**Storage** - PROC01, PROC02

<b>Processes and activities covered by the exposure scenario</b>	: Industrial formulation of lubricant additives, lubricants and greases. Includes material transfers, mixing, large and small scale packing, sampling, maintenance.
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### Section 2 - Exposure controls

<b>Contributing scenario controlling environmental exposure for 1:</b>
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No exposure scenario required

<b>Contributing scenario controlling worker exposure for 2: General measures applicable to all activities</b>
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<b>Concentration of substance in mixture or article</b>	: Covers percentage substance in the product up to 100 %. (unless stated differently)
<b>Physical state</b>	: Liquid, vapor pressure < 0.5 kPa at Standard Temperature and Pressure
<b>Amounts used</b>	: Not applicable.
<b>Frequency and duration of use/exposure</b>	: Covers daily exposures up to 8 hours (unless stated differently)
<b>Human factors not influenced by risk management</b>	: Not applicable.
<b>Other conditions affecting workers exposure</b>	: Covers percentage substance in the product up to 100% (unless stated differently)
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	

<b>Date of issue/Date of revision</b> : 7/21/2021
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18/29

<p><b>Advice on general occupational hygiene</b></p> <p><b>Personal protection</b></p>	<p>: Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Avoid direct eye contact with product, also via contamination on hands.</p> <p>: Use suitable eye protection.</p>
<p><b>Contributing scenario controlling worker exposure for 3: General exposures Use in contained systems Elevated temperature</b></p> <p>No other specific measures identified.</p>	
<p><b>Contributing scenario controlling worker exposure for 4: Mixing operations Closed systems Batch processes at elevated temperatures</b></p> <p><b>Ventilation control measures</b></p>	
<p><b>Contributing scenario controlling worker exposure for 5: Mixing operations Open systems Batch processes at elevated temperatures</b></p> <p><b>Frequency and duration of use/exposure</b></p> <p><b>Ventilation control measures</b></p>	
<p><b>Contributing scenario controlling worker exposure for 6: Mixing operations (open systems)</b></p> <p><b>Ventilation control measures</b></p>	
<p><b>Contributing scenario controlling worker exposure for 7: Process sampling</b></p> <p><b>Frequency and duration of use/exposure</b></p> <p><b>Conditions and measures related to personal protection, hygiene and health evaluation</b></p> <p><b>Personal protection</b></p>	
<p><b>Contributing scenario controlling worker exposure for 8: Bulk transfers Dedicated facility</b></p> <p><b>Frequency and duration of use/exposure</b></p> <p><b>Conditions and measures related to personal protection, hygiene and health evaluation</b></p> <p><b>Personal protection</b></p> <p><b>Respiratory protection</b></p>	
<p><b>Contributing scenario controlling worker exposure for 9: Drum/batch transfers Dedicated facility</b></p> <p><b>Ventilation control measures</b></p>	
<p><b>Contributing scenario controlling worker exposure for 10: Drum/batch transfers Non-dedicated facility</b></p> <p><b>Frequency and duration of use/exposure</b></p> <p><b>Ventilation control measures</b></p> <p><b>Conditions and measures related to personal protection, hygiene and health evaluation</b></p> <p><b>Personal protection</b></p>	

**Contributing scenario controlling worker exposure for 11: Equipment cleaning and maintenance**

**Technical conditions and measures to control dispersion from source towards the worker** : Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

**Engineering controls** : Drain down and flush system prior to equipment break-in or maintenance.

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

**Advice on general occupational hygiene** : Clear spills immediately.

**Personal protection** : Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

**Respiratory protection** : Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%

**Contributing scenario controlling worker exposure for 12: Drum and small package filling**

**Ventilation control measures** : Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour).

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

**Personal protection** : Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training.

**Respiratory protection** : Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%

**Contributing scenario controlling worker exposure for 13: Laboratory activities**

**Frequency and duration of use/exposure** : Avoid carrying out activities involving exposure for more than 4 hours per day.

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

**Respiratory protection** : Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%

**Contributing scenario controlling worker exposure for 14: Storage**

**Engineering controls** : Store substance within a closed system.

**Section 3 - Exposure estimation and reference to its source**

**Website:** : Not applicable.

**Exposure estimation and reference to its source - Environment: 1:**

**Exposure assessment (environment):** : Used ECETOC TRA model.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities**

**Exposure assessment (human):** : The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 3: General exposures Use in contained systems Elevated temperature**

**Exposure assessment (human):** : The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 4: Mixing operations Closed systems Batch processes at elevated temperatures**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 5: Mixing operations Open systems Batch processes at elevated temperatures**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 6: Mixing operations (open systems)**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 7: Process sampling**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 8: Bulk transfers Dedicated facility**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 9: Drum/batch transfers Dedicated facility**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 10: Drum/batch transfers Non-dedicated facility**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 11: Equipment cleaning and maintenance**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 12: Drum and small package filling**

<b>Exposure assessment (human):</b>	: The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.
<b>Exposure estimation and reference to its source</b>	: Not available.

**Exposure estimation and reference to its source - Workers: 13: Laboratory activities**

<b>Exposure assessment (human):</b>	: The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.
<b>Exposure estimation and reference to its source</b>	: Not available.

**Exposure estimation and reference to its source - Workers: 14: Storage**

<b>Exposure assessment (human):</b>	: The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.
<b>Exposure estimation and reference to its source</b>	: Not available.

**Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

<b>Environment</b>	: 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. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see <a href="http://www.atiel.org/reach/introduction">www.atiel.org/reach/introduction</a> .
<b>Health</b>	: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For further information see <a href="http://www.atiel.org/reach/introduction">www.atiel.org/reach/introduction</a> .

**Additional good practice advice beyond the REACH CSA**

<b>Environment</b>	: Not available.
<b>Health</b>	: Not available.

## Annex to the extended Safety Data Sheet (eSDS)

Industrial

### Identification of the substance or mixture

**Product definition** : Mixture  
**Code** : 085644  
**Product name** : HBF 4 OEM+

### Section 1 - Title

**Short title of the exposure scenario** : General use of lubricants and greases in vehicles or machinery - Industrial

**List of use descriptors** : **Identified use name:** General use of lubricants and greases in vehicles or machinery - Industrial  
**Process Category:** PROC01, PROC02, PROC08b, PROC09  
**Sector of end use:** SU03  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC04, ERC07

**Health Contributing scenarios** : **General measures applicable to all activities**  
**General exposures (closed systems)** - PROC01  
**Initial factory fill of equipment Use in contained systems** - PROC02, PROC09  
**Initial factory fill of equipment Open systems** - PROC08b  
**Operation of equipment containing engine oils and similar Use in contained systems** - PROC01  
**Equipment cleaning and maintenance** - PROC08b  
**Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature)** - PROC08b  
**Storage** - PROC01, PROC02

<b>Processes and activities covered by the exposure scenario</b>	: Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.
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### Section 2 - Exposure controls

#### Contributing scenario controlling environmental exposure for 1:

No exposure scenario required

#### Contributing scenario controlling worker exposure for 2: **General measures applicable to all activities**

**Concentration of substance in mixture or article** : Covers percentage substance in the product up to 100% (unless stated differently).

**Physical state** : Liquid, vapor pressure < 0.5 kPa at Standard Temperature and Pressure.

**Frequency and duration of use/exposure** : Covers daily exposures up to 8 hours (unless stated differently).

**Other conditions affecting workers exposure** : Assumes use at not more than 20°C above ambient temperature. unless stated differently.  
Assumes a good basic standard of occupational hygiene has been implemented.

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

**Advice on general occupational hygiene** : Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Avoid direct eye contact with product, also via contamination on hands.

**Personal protection** : Use suitable eye protection.

**Contributing scenario controlling worker exposure for 3: General exposures (closed systems)**

No other specific measures identified.

**Contributing scenario controlling worker exposure for 4: Initial factory fill of equipment Use in contained systems****Conditions and measures related to personal protection, hygiene and health evaluation**

**Respiratory protection** : Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%

**Contributing scenario controlling worker exposure for 5: Initial factory fill of equipment Open systems**

**Frequency and duration of use/exposure** : Avoid carrying out activities involving exposure for more than 4 hours per day.

**Ventilation control measures** : Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour)

**Contributing scenario controlling worker exposure for 6: Operation of equipment containing engine oils and similar Use in contained systems**

No other specific measures identified.

**Contributing scenario controlling worker exposure for 7: Equipment cleaning and maintenance**

**Technical conditions and measures at process level (source) to prevent release** : Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

**Engineering controls** : Drain down system prior to equipment break-in or maintenance.

**Ventilation control 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 chemical-resistant gloves (tested to EN374) in combination with specific activity training.

**Respiratory protection** : Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%

**Contributing scenario controlling worker exposure for 8: Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature)**

**Technical conditions and measures to control dispersion from source towards the worker** : Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

**Engineering controls** : Drain down system prior to equipment break-in or maintenance.

**Ventilation control measures** : Provide extract ventilation to emission points when contact with warm (>50°C) lubricant is likely.

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

**Personal protection** : Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

**Contributing scenario controlling worker exposure for 9: Storage**

**Engineering controls** : Store substance within a closed system.

**Section 3 - Exposure estimation and reference to its source**

**Website:** : Not applicable.

**Exposure estimation and reference to its source - Environment: 1:**

**Exposure assessment (environment):** : Used ECETOC TRA model.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 3: General exposures (closed systems)**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 4: Initial factory fill of equipment Use in contained systems**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 5: Initial factory fill of equipment Open systems**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 6: Operation of equipment containing engine oils and similar Use in contained systems**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 7: Equipment cleaning and maintenance**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 8: Equipment cleaning and maintenance Operation is carried out at elevated temperature (> 20°C above ambient temperature)**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 9: Storage**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

<b>Environment</b>	: 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. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see <a href="http://www.atiel.org/reach/introduction">www.atiel.org/reach/introduction</a> .
<b>Health</b>	: Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For further information see <a href="http://www.atiel.org/reach/introduction">www.atiel.org/reach/introduction</a> .

**Additional good practice advice beyond the REACH CSA**

<b>Environment</b>	: Not available.
<b>Health</b>	: Not available.

## Annex to the extended Safety Data Sheet (eSDS)

Professional

### Identification of the substance or mixture

**Product definition** : Mixture  
**Code** : 085644  
**Product name** : HBF 4 OEM+

### Section 1 - Title

**Short title of the exposure scenario** : General use of lubricants and greases in vehicles or machinery - Professional

**List of use descriptors** : **Identified use name:** General use of lubricants and greases in vehicles or machinery - Professional  
**Process Category:** PROC01, PROC02, PROC08a, PROC08b, PROC20  
**Sector of end use:** SU22  
**Subsequent service life relevant for that use:** No.  
**Environmental Release Category:** ERC09a, ERC09b

**Health Contributing scenarios** : **General measures applicable to all activities**  
**Operation of equipment containing engine oils and similar Use in contained systems** - PROC01  
**Material transfers Non-dedicated facility** - PROC08a  
**Equipment cleaning and maintenance Dedicated facility** - PROC08b, PROC20  
**Storage** - PROC01, PROC02

<b>Processes and activities covered by the exposure scenario</b>	: Covers general use of lubricants and greases in vehicles or machinery in closed systems. Includes filling and draining of containers and operation of enclosed machinery (including engines) and associated maintenance and storage activities.
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### Section 2 - Exposure controls

#### Contributing scenario controlling environmental exposure for 1:

No exposure scenario required

#### Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

**Concentration of substance in mixture or article** : Covers percentage substance in the product up to 100% (unless stated differently).

**Physical state** : Liquid, vapor pressure < 0.5 kPa at Standard Temperature and Pressure.

**Frequency and duration of use/exposure** : Covers daily exposures up to 8 hours (unless stated differently).

**Other conditions affecting workers exposure** : Assumes use at not more than 20°C above ambient temperature. unless stated differently.  
Assumes a good basic standard of occupational hygiene has been implemented.

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

**Advice on general occupational hygiene** : Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Avoid direct eye contact with product, also via contamination on hands.

**Personal protection** : Use suitable eye protection.

#### Contributing scenario controlling worker exposure for 3: Operation of equipment containing engine oils and similar Use in contained systems

No other specific measures identified.

**Contributing scenario controlling worker exposure for 4: Material transfers Non-dedicated facility**

**Frequency and duration of use/exposure** : Avoid carrying out activities involving exposure for more than 4 hours per day.

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

**Personal protection** : Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training.

**Respiratory protection** : Wear a respirator conforming to EN140 with type A/P2 filter or better. Effectiveness: 95%

**Contributing scenario controlling worker exposure for 5: Equipment cleaning and maintenance Dedicated facility**

**Technical conditions and measures at process level (source) to prevent release** : Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

**Engineering controls** : Drain down system prior to equipment break-in or maintenance.

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

**Respiratory protection** : Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%

**Contributing scenario controlling worker exposure for 6: Storage**

**Engineering controls** : Store substance within a closed system.

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

**Respiratory protection** : Wear a respirator conforming to EN140 with type A filter or better. Effectiveness: 90%

**Section 3 - Exposure estimation and reference to its source**

**Website:** : Not applicable.

**Exposure estimation and reference to its source - Environment: 1:**

**Exposure assessment (environment):** : Used ECETOC TRA model.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities**

**Exposure assessment (human):** : The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 3: Operation of equipment containing engine oils and similar Use in contained systems**

**Exposure assessment (human):** : The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 4: Material transfers Non-dedicated facility**

**Exposure assessment (human):** : The risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 5: Equipment cleaning and maintenance Dedicated facility**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Exposure estimation and reference to its source - Workers: 6: Storage**

**Exposure assessment (human):** : The risk Management Mesures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product.

**Exposure estimation and reference to its source** : Not available.

**Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

**Environment** : Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SPERC factsheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. For further information see [www.atiel.org/reach/introduction](http://www.atiel.org/reach/introduction).

**Health** : Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. For further information see [www.atiel.org/reach/introduction](http://www.atiel.org/reach/introduction).

**Additional good practice advice beyond the REACH CSA**

**Environment** : Not available.

**Health** : Not available.