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| | |
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| **Short Title** | D05 – Material Safety Data Sheets |
| **Full Title** | D05 – Material Safety Data Sheets |
| **Abstract** | |

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# Revision Record

| Rev # | Description | Revised By | Date |
|---|---|---|---|
| 1.0 | Initial Release | EZE | August 2, 2024 |
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## 1.0 Purpose

The purpose of this document is to provide Material Safety Data Sheets, in accordance with ISO 11014 or OSHA 1910 – 1200, for all relevant chemicals (incl. lubricants and coolants) supplied or recommended for use with the 1MW fuel cell container (MEGABLOCK) provided by Ballard Power Systems Europe to CrossWind.

## 2.0 References

| Document ID | Document Title | Source |
|---|---|---|
| K559-2254-DM-PRO-001 | Supplier Documentation Requirements Listing (SDRL) Definitions | KBR |
| K559-2254-CWIWP4202202-N07-001 | Chemicals and Catalysts | Ballard |
| K559-2254-CWIWP4202202-N08-001 | Lubricants | Ballard |
| MAN-002 | FCwave™ Fuel Cell Module Integration Manual v2.2.0 | Ballard |

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## 3.0 Overview of Material Safety Data Sheets

The complete list of coolants and lubricants used in the 1MW fuel cell container (MEGABLOCK) is shown below.

| Manufacturer | Type | Name | Description / Use | Sub-assembly |
|---|---|---|---|---|
| BASF | Coolant | Glysantin® FC G20® | Used in the internal cooling loop of the fuel cell modules, where a low electrical conductivity is required.<br>Pre-mixed 50/50 ethylene glycol-based coolant specifically developed to support the requirements in fuel cell technologies. It maintains a low and stable electrical conductivity, while at the same time providing protection against corrosion, frost and overheating. | FCwave™ |
| Proviron | Coolant | proviflow® Neo | Used in both HT and LT cooling loops.<br>Pre-mixed 50/50 ethylene glycol-based coolant with OAT (Organic Acid Technology) inhibitors and designed to offer freeze point suppression as well as protection against corrosion, hard water scaling and bacterial growth. | Container Solution |
| Putoline® | Lubricant | Ceramic Grease PV.20.01 | High-grade assembly paste and high temperature lubricant grease without metal particles used for lubrication of bolts. | Container Solution |
| Chemours™ | Lubricant | Krytox™ GPL 205 | Chemically inert, PTFE thickened grease based on perfluoropolyether (PFPE) oils that is safe for use around hazardous chemicals, these lubricants are non-flammable and safe for use in oxygen service. They can be used in extreme conditions, such as continuous high temperatures of up to 204 °C (400 °F) and will survive short-term peak temperatures of up to 220 °C (429 °F). | FCwave™ |
| | Lubricant | Krytox™ GPL 206 | Chemically inert, PTFE thickened grease based on perfluoropolyether (PFPE) oils that is safe for use around hazardous chemicals, these lubricants are non-flammable and safe for use in oxygen service. They can be used in extreme conditions, such as continuous high temperatures of up to 260 °C (500 °F) and will survive short-term peak temperatures of up to 270 °C (518 °F). | |

# 4.0 Material Safety Data Sheets

## *4.1 BASF Glysantin® FC G20®*

BASF
We create chemistry

### Safety Data Sheet
### GLYSANTIN® FC G20® ELECTRIFIED®

Revision date : 2024/04/05 Page: 1/10
Version: 3.3 (30244083/SDS_GEN_US/EN)

**1. Identification**

**Product identifier used on the label**

**GLYSANTIN® FC G20® ELECTRIFIED®**

**Recommended use of the chemical and restriction on use**

Recommended use*: Ready-to-use engine coolants
Unsuitable for use: None known

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

**Details of the supplier of the safety data sheet**

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA
Fuel and Lubricant Solutions

E-mail address: RegXcellenceFuelLubes@basf.com

**Emergency telephone number**
24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

**Other means of identification**
Chemical family: inhibitors, in water

**2. Hazards Identification**

**According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200**

**Classification of the product**

| | | |
|---|---|---|
| Acute Tox. | 4 (oral) | Acute toxicity |
| STOT RE | 2 | Specific target organ toxicity — repeated exposure |

**Label elements**

Pictogram:



Signal Word:
Warning

Hazard Statement:

| | |
|---|---|
| H302 | Harmful if swallowed. |
| H373 | May cause damage to organs (Kidney) through prolonged or repeated exposure. |

Precautionary Statements (Prevention):

| | |
|---|---|
| P260 | Do not breathe dust/gas/mist/vapours. |
| P270 | Do not eat, drink or smoke when using this product. |
| P264 | Wash contaminated body parts thoroughly after handling. |

Precautionary Statements (Response):

| | |
|---|---|
| P314 | Get medical advice/attention if you feel unwell. |
| P301 + P312 | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. |
| P330 | Rinse mouth. |

Precautionary Statements (Disposal):

| | |
|---|---|
| P501 | Dispose of contents/container in accordance with local regulations. |

**Hazards not otherwise classified**

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

## 3. Composition / Information on Ingredients

**According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200**

ethylene glycol
CAS Number: 107-21-1
Content (W/W): >= 25.0 - < 75.0%
Synonym: 1,2-Ethanediol; Ethylene glycol

## 4. First-Aid Measures

**Description of first aid measures**

**General advice:**
Immediately remove contaminated clothing.

**If inhaled:**
Keep patient calm, remove to fresh air, seek medical attention.

**If on skin:**
Remove contaminated clothing. Rinse skin immediately with plenty of water for 15 - 20 minutes. If irritation develops, seek medical attention.

**If in eyes:**
Wash affected eyes for at least 15 minutes under running water with eyelids held open.

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Seek medical attention.

**If swallowed:**
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention. Administer 50 ml of pure ethanol in a drinkable concentration.

**Most important symptoms and effects, both acute and delayed**

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11., (Further) symptoms and / or effects are not known so far

*Information on: ethylene glycol*
*Symptoms: Overexposure may cause:, corneal injury, severe pain, skin irritation, coughing, respiratory disorders, dyspnea, nausea, headache, vomiting, dizziness, diarrhea, abdominal cramps*
---
Hazards: No applicable information available.

**Indication of any immediate medical attention and special treatment needed**

## 5. Fire-Fighting Measures

**Extinguishing media**

Suitable extinguishing media:
water spray, dry powder, foam

**Special hazards arising from the substance or mixture**
Hazards during fire-fighting:
harmful vapours
Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

**Advice for fire-fighters**
Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

**Further information:**
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Use personal protective clothing. Breathing protection required.

**Environmental precautions**
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

**Methods and material for containment and cleaning up**
For small amounts: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder).
Dispose of absorbed material in accordance with regulations.
For large amounts: Pump off product.
Place absorbed material in the same container as the spilled substance/product for disposal.

## 7. Handling and Storage

**Precautions for safe handling**
No special measures necessary provided product is used correctly.

Protection against fire and explosion:
Take precautionary measures against static discharges.

**Conditions for safe storage, including any incompatibilities**
Segregate from oxidants.

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

Storage stability:
Storage temperature: < 30 °C
Protect from temperatures above: 30 °C

## 8. Exposure Controls/Personal Protection

**Components with occupational exposure limits**

| | | |
|---|---|---|
| ethylene glycol | ACGIH, US: | TWA value 25 ppm Vapor fraction ; |
| | ACGIH, US: | STEL value 50 ppm Vapor fraction ; |
| | ACGIH, US: | STEL value 10 mg/m3 Inhalable fraction, Aerosole ; |

**Advice on system design:**
No applicable information available.

**Personal protective equipment**

**Respiratory protection:**
Wear respiratory protection if ventilation is inadequate. Respiratory protection in case of vapour/aerosol release.

**Hand protection:**
Wear chemically impervious protective gloves.

**Eye protection:**
Safety glasses with side-shields.

**Body protection:**
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

**General safety and hygiene measures:**
No eating, drinking, smoking or tobacco use at the place of work. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and Chemical Properties

| | | |
|---|---|---|
| Form: | liquid | |
| Odour: | of glycol | |
| Odour threshold: | not determined | |
| Colour: | colourless | |
| pH value: | approx. 5.5<br>(measured with the undiluted substance) | (ASTM D1287) |
| Freezing point: | approx. -38 °C | |
| Melting temperature: | No applicable information available. | |
| Boiling point: | approx. 108 °C<br>( 1,013 hPa) | (ASTM D1120) |
| Sublimation point: | No applicable information available. | |
| Flash point: | > 100 °C | (ISO 2592) |
| Flammability: | hardly combustible | (derived from flash point) |
| Lower explosion limit: | For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point. | |
| Upper explosion limit: | For liquids not relevant for classification and labelling. | |
| Autoignition: | 435 °C | (DIN 51794) |
| Vapour pressure: | 17 hPa<br>( 20 °C)<br>85 hPa<br>( 50 °C) | |
| Density: | 1.065 g/cm3<br>( 20 °C) | (ISO 2811-3) |
| Relative density: | No applicable information available. | |
| Vapour density: | not determined | |
| Partitioning coefficient n-octanol/water (log Pow): | Study scientifically not justified. | |
| Self-ignition temperature: | not self-igniting | |
| Thermal decomposition: | No decomposition if used as directed. | |
| Viscosity, dynamic: | No applicable information available. | |
| Viscosity, kinematic: | approx. 4 mm2/s<br>( 23 °C) | (DIN 51562) |

| | | |
|---|---|---|
| | approx. 2.5 mm2/s<br>( 40 °C) | (DIN 51562) |
| Particle size: | The substance / product is marketed or used in a non solid or granular form. | |
| Solubility in water: | ( 15 °C)<br>soluble | |
| Solubility (quantitative): | No applicable information available. | |
| Solubility (qualitative): | No applicable information available. | |
| Molar mass: | No applicable information available. | |
| Evaporation rate: | not determined | |
| Other Information: | If necessary, information on other physical and chemical parameters is indicated in this section. | |

## 10. Stability and Reactivity

**Reactivity**
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
not fire-propagating

| | | |
|---|---|---|
| Formation of flammable gases: | Remarks: | Forms no flammable gases in the presence of water. |

**Chemical stability**
The product is stable if stored and handled as prescribed/indicated.

**Possibility of hazardous reactions**
No hazardous reactions when stored and handled according to instructions.
The product is chemically stable.

**Conditions to avoid**
Avoid open flames.

**Incompatible materials**
strong oxidizing agents

**Hazardous decomposition products**

Decomposition products:
Hazardous decomposition products: No hazardous decomposition products known.

Thermal decomposition:
No decomposition if used as directed.

## 11. Toxicological information

**Primary routes of exposure**

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

**Acute Toxicity/Effects**

Acute toxicity
Assessment of acute toxicity: Of moderate toxicity after single ingestion. Of low toxicity after short-term skin contact.

Oral
Type of value: LD (human)
Value: approx. 1,600 mg/kg

*Information on: ethylene glycol*
*Type of value: LD (human)*
*Species: human (male/female)*
*Value: approx. 1,600 mg/kg*
---

Inhalation
No applicable information available.

Dermal
Type of value: LD50
Species: rabbit
Value: > 2,000 mg/kg
Literature data.

Assessment other acute effects
Based on available data, the classification criteria are not met.

Irritation / corrosion
Assessment of irritating effects: Not irritating to eyes and skin.

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies. Human data do not fully exclude a skin sensitizing potential.

Aspiration Hazard
No aspiration hazard expected.

**Chronic Toxicity/Effects**

Repeated dose toxicity
Assessment of repeated dose toxicity: Repeated exposure may affect certain organs.

*Information on: ethylene glycol*
*Assessment of repeated dose toxicity: The substance may cause damage to the kidney after repeated ingestion. The substance may cause damage to the kidney after repeated skin contact with high doses.*
---

Genetic toxicity
Assessment of mutagenicity: Based on the ingredients, there is no suspicion of a mutagenic effect.

Carcinogenicity
Assessment of carcinogenicity: The whole of the information assessable provides no indication of a carcinogenic effect.

Reproductive toxicity
Assessment of reproduction toxicity: Based on available data, the classification criteria are not met.

Teratogenicity
Assessment of teratogenicity: Based on available data, the classification criteria are not met.

*Information on: ethylene glycol*
*Assessment of teratogenicity: Developmental toxicity was observed after oral ingestion of high doses in studies with rats and mice, but this effect was not seen in a study with rabbits. Mechanistic studies show that the rabbit is the relevant species for the classification for human health. As such, and since ethylene glycol is not a developmental toxicant in the rabbit, no classification is warranted.*
---

Other Information
The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

## 12. Ecological Information

### Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms.

### Microorganisms/Effect on activated sludge

Toxicity to microorganisms

Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.

### Persistence and degradability

Assessment biodegradation and elimination (H2O)
The single components are biological degradable.

### Bioaccumulative potential

Assessment bioaccumulation potential
Accumulation in organisms is not to be expected.

### Mobility in soil

Assessment transport between environmental compartments
The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

### Additional information

Other ecotoxicological advice:
Do not release untreated into natural waters.

The product has not been tested. The statement has been derived from the properties of the individual components.

## 13. Disposal considerations

**Waste disposal of substance:**
Dispose of in accordance with national, state and local regulations. It is the waste generator's responsibility to determine if a particular waste is hazardous under RCRA.

**Container disposal:**
Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

## 14. Transport Information

**Land transport**
USDOT
Not classified as a dangerous good under transport regulations

**Sea transport**
IMDG
Not classified as a dangerous good under transport regulations

**Air transport**
IATA/ICAO
Not classified as a dangerous good under transport regulations

**Further information**
DOT: This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Please refer to Section 15 of this SDS for the RQ for this product. Bulk Shipments: RQ,UN3082 Environmentally Hazardous Substance, Liquid NOS (Ethyleneglycol), 9, PG III

## 15. Regulatory Information

**Federal Regulations**

**Registration status:**
Chemical TSCA, US released / listed

**EPCRA 311/312 (Hazard categories):** Refer to SDS section 2 for GHS hazard classes applicable for this product.

**EPCRA 313:**

| CAS Number | Chemical name |
|---|---|
| 107-21-1 | ethylene glycol |

| CERCLA RQ | CAS Number | Chemical name |
|---|---|---|
| 5000 LBS | 107-21-1 | ethylene glycol |

**State regulations**

| State RTK | CAS Number | Chemical name |
|---|---|---|
| PA | 107-21-1 | ethylene glycol |
| NJ | 107-21-1 | ethylene glycol |

**Safe Drinking Water & Toxic Enforcement Act, CA Prop. 65:**

**WARNING:** This product can expose you to chemicals including ETHYLENE GLYCOL (INGESTED), which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

**NFPA Hazard codes:**
Health: 1 Fire: 1 Reactivity: 0 Special:

**HMIS III rating**
Health: 1 Flammability: 1 Physical hazard: 0

## 16. Other Information

**SDS Prepared by:**
BASF NA Product Regulations
SDS Prepared on: 2024/04/05

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END OF DATA SHEET

## *4.2 Proviron proviflow® Neo*

# Proviflow Neo

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 1/16/2024 Revision date: 1/16/2024 Supersedes version of: 12/15/2023 Version: 0.1

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

### 1.1. Product identifier

Product form : Mixture
Trade name : Glad Long Life Ethylenglykol, Glad Proviflow N, Glad Proviflow Neo, Glad Proviflow N Ethylenglykol, Glad Ethylenglykol, Proviflow N, Proviflow Neo
REACH registration No. : 01-2119456816-28
PR nr : 4176178

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

#### 1.2.1. Relevant identified uses

Main use category : For professional use only
Use of the substance/mixture : Heat transfer fluids

#### 1.2.2. Uses advised against

No additional information available

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

**Supplier**
Proviron Industries nv
Georges Gilliotstraat 60
BE 2620 Hemiksem
Belgium
T +32 3 870 88 20, F +32 3 877 23 33
info@proviron.com, www.proviron.com

### 1.4. Emergency telephone number

| Country/Area | Organisation/Company | Address | Emergency number | Comment |
|---|---|---|---|---|
| Denmark | Giftlinjen<br>Bispebjerg Hospital | Bispebjerg Bakke 23E<br>Opgang 20 C<br>2400 Copenhagen | +45 82 12 12 12 | |

**Importer:**
L.C. Glad & Co. A/S
Vallensbækvej 65
2625 Vallensbæk
T + 43 62 20 21
www.lcglad.dk – info@lcglad.dk

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Acute toxicity (oral), Category 4 H302
Specific target organ toxicity – Repeated exposure, Category 2 H373
Full text of H- and EUH-statements: see section 16

**Adverse physicochemical, human health and environmental effects**

No additional information available

1/16/2024 (Revision date) EU - en 1/10

## Proviflow Neo

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07 GHS08

Signal word (CLP) : Warning

Contains : ethanediol; ethylene glycol

Hazard statements (CLP) : H302 - Harmful if swallowed.
H373 - May cause damage to organs (kidneys) through prolonged or repeated exposure (oral).

Precautionary statements (CLP) : P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell.
P330 - Rinse mouth.

### 2.3. Other hazards

Other hazards which do not result in classification : Absorbed through the skin.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [EU-GHS/CLP] |
|---|---|---|---|
| Monoethylene glycol | CAS: 107-21-1<br>EC/EINECS/ELINS: 203-473-3<br>EC Index-No.: 603-027-00-1<br>REACH-no: 01-2119456816-28 | > 92 | Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight)<br>STOT RE 2, H373 |

Full text of H- and EUH-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Administer oxygen if breathing is difficult. Get immediate medical advice/attention.

First-aid measures after skin contact : Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. In all cases of doubt, or when symptoms persist, seek medical attention.



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TEMPLATE FRM5100236 0H
***Ballard Confidential***
Printed on: Friday, August 02, 2024

| | | |
|---|---|---|
| First-aid measures after eye contact | : | Rinse immediately with plenty of water for 15 minutes. Get immediate medical advice/attention. |
| First-aid measures after ingestion | : | Do not induce vomiting. Rinse mouth out with water. Get immediate medical advice and attention. |

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

| | | |
|---|---|---|
| Symptoms/effects after inhalation | : | At high concentrations, the vapours can be irritating to the respiratory system. Cough. |
| Symptoms/effects after eye contact | : | May cause eye-irritation of susceptible persons. |
| Symptoms/effects after ingestion | : | Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhoea. |
| Chronic symptoms | : | Harmful: danger of serious damage to health by prolonged exposure if swallowed. Affects the liver. Material known to cause adverse reproductive effects. |

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

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

| | | |
|---|---|---|
| Suitable extinguishing media | : | dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2). Water spray. |
| Unsuitable extinguishing media | : | Strong water jet. |

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

| | | |
|---|---|---|
| Reactivity in case of fire | : | On burning: release of carbon monoxide - carbon dioxide. |

### 5.3. Advice for firefighters

| | | |
|---|---|---|
| Firefighting instructions | : | Use water stream to cool containers. Use water stream to cool containers. |
| Protection during firefighting | : | Wear fire resistant or flame retardant clothing. Extra personal protection: self-contained breathing apparatus. |
| Other information | : | Do not allow run-off from fire fighting to enter drains or water courses. |

## SECTION 6: Accidental release measures

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

| | | |
|---|---|---|
| General measures | : | Eliminate every possible source of ignition. Avoid inhalation of vapours. Avoid contact with skin, eyes and clothing. |

#### 6.1.1. For non-emergency personnel

| | | |
|---|---|---|
| Protective equipment | : | Wear recommended personal protective equipment. |

#### 6.1.2. For emergency responders

| | | |
|---|---|---|
| Protective equipment | : | Wear recommended personal protective equipment. |

### 6.2. Environmental precautions

Stop leak without risks if possible. Do not discharge into drains or the environment.

### 6.3. Methods and material for containment and cleaning up

| | | |
|---|---|---|
| For containment | : | Absorb remaining liquid with sand or inert absorbent and remove to safe place. Collect leaking liquid in sealable containers. |
| Methods for cleaning up | : | After cleaning, flush traces away with water. |

### 6.4. Reference to other sections

No additional information available



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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

| | | |
|---|---|---|
| Precautions for safe handling | : | Skin resorption. Avoid contact with skin, eyes and clothing. Avoid the formation of mists in the atmosphere. Avoid inhalation of vapours. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. |
| Hygiene measures | : | Wash hands immediately after handling the product. Do not eat, drink or smoke when using this product. |

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

| | | |
|---|---|---|
| Storage conditions | : | Keep only in the original container in a cool, well-ventilated place. |
| Storage temperature | : | 0 – 40 °C |
| Heat and ignition sources | : | Avoid ignition sources. |
| Information on mixed storage | : | Keep away from oxidizing agents. |
| Storage area | : | Store in a cool, well-ventilated place. |
| Packaging materials | : | IBC - Composite with plastics inner receptacle - for liquids, with rigid plastics inner receptacle. |

**Switzerland**

| | | |
|---|---|---|
| Storage class (LK) | : | LK 6.1 - Toxic materials |

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

**8.1.1 National occupational exposure and biological limit values**

| Monoethylene glycol (107-21-1) | |
|---|---|
| **EU - Indicative Occupational Exposure Limit (IOEL)** | |
| Local name | Ethylene glycol |
| IOEL TWA | 52 mg/m³ |
| | 20 ppm |
| IOEL STEL | 104 mg/m³ |
| | 40 ppm |
| Remark | Skin |

**8.1.2. Recommended monitoring procedures**

No additional information available

**8.1.3. Air contaminants formed**

No additional information available

**8.1.4. DNEL and PNEC**

No additional information available

**8.1.5. Control banding**

No additional information available

#### 8.2. Exposure controls

**8.2.1. Appropriate engineering controls**

**Appropriate engineering controls:**
Ensure good ventilation of the work station.



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#### 8.2.2. Personal protection equipment

##### 8.2.2.1. Eye and face protection

**Eye protection:**
Protective goggles or face shield

##### 8.2.2.2. Skin protection

**Skin and body protection:**
Avoid contact with skin, eyes and clothing. Take off immediately all contaminated clothing and wash it before reuse.

**Hand protection:**
Chemical resistant gloves (according to European standard ISO 374-1 or equivalent). Butyl rubber. Polyvinylchloride (PVC)

##### 8.2.2.3. Respiratory protection

**Respiratory protection:**
In order to avoid inhalation of mist/vapour, all spraying must be done wearing adequate respirator. Do not breathe gas/vapour/aerosol. On heating : Breathing equipment. A2

##### 8.2.2.4. Thermal hazards

No additional information available

#### 8.2.3. Environmental exposure controls

**Environmental exposure controls:**
Do not discharge into drains or the environment.

## SECTION 9: Physical and chemical properties

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

| | | |
|---|---|---|
| Physical state | : | Liquid |
| Colour | : | Not available |
| Appearance | : | Viscous. |
| Odour | : | odourless. |
| Odour threshold | : | Not available |
| Melting point | : | Not available |
| Freezing point | : | Not available |
| Boiling point | : | Not available |
| Flammability | : | Not available |
| Lower explosion limit | : | Not available |
| Upper explosion limit | : | Not available |
| Flash point | : | 124 °C Closed cup |
| Auto-ignition temperature | : | Not available |
| Decomposition temperature | : | Not available |
| pH | : | Not available |
| pH solution | : | 7.5 – 10 (50% aqueous solution @ 20°C) |
| Viscosity, kinematic | : | 18 mm²/s (@ 25°C) |
| Solubility | : | Soluble in water. |
| Partition coefficient n-octanol/water (Log Kow) | : | Not available |
| Vapour pressure | : | Not available |
| Vapour pressure at 50°C | : | Not available |
| Density | : | 1.111 g/ml (@ 20°C) |
| Relative density | : | Not available |
| Relative vapour density at 20°C | : | Not available |
| Particle characteristics | : | Not applicable |

### 9.2. Other information

#### 9.2.1. Information with regard to physical hazard classes

No additional information available

#### 9.2.2. Other safety characteristics

No additional information available



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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable in use and storage conditions as recommended in item 7.

### 10.3. Possibility of hazardous reactions

Reacts with (some) acids: (increased) risk of fire/explosion.

### 10.4. Conditions to avoid

High temperature. Moisture. Direct sunlight.

### 10.5. Incompatible materials

Strong oxidizing agents. Aluminium. Rubbers.

### 10.6. Hazardous decomposition products

Carbon oxides (CO, CO2).

## SECTION 11: Toxicological information

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

Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation) : Not classified (Based on available data, the classification criteria are not met)

| Proviflow Neo | |
|---|---|
| ATE CLP (oral) | 533.824 mg/kg bodyweight |

| Monoethylene glycol (107-21-1) | |
|---|---|
| LD50 oral rat | 7712 mg/kg |
| LD50 dermal | > 3500 mg/kg mouse |
| LC50 inhalation rat | > 2.5 mg/l |

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure : May cause damage to organs (kidneys) through prolonged or repeated exposure (oral).

| Monoethylene glycol (107-21-1) | |
|---|---|
| STOT-repeated exposure | May cause damage to organs through prolonged or repeated exposure. |

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

| Proviflow Neo | |
|---|---|
| Viscosity, kinematic | 18 mm²/s (@ 25°C) |

### 11.2. Information on other hazards

No additional information available



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### SECTION 12: Ecological information

#### 12.1. Toxicity

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Not classified

| Monoethylene glycol (107-21-1) | |
|---|---|
| LC50 - Fish [1] | 72860 mg/l (Pimephales promelas) |

#### 12.2. Persistence and degradability

| Proviflow Neo | |
|---|---|
| Persistence and degradability | Rapidly degradable |

| Monoethylene glycol (107-21-1) | |
|---|---|
| Persistence and degradability | Readily biodegradable. |

#### 12.3. Bioaccumulative potential

| Monoethylene glycol (107-21-1) | |
|---|---|
| Bioaccumulative potential | Low bioaccumulation potential. |

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

| Proviflow Neo |
|---|
| This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII |
| This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII |

#### 12.6. Endocrine disrupting properties

No additional information available

#### 12.7. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Sewage treatment plant.

Product/Packaging disposal recommendations : Collect all waste in suitable and labelled containers and dispose according to local legislation.

### SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

#### 14.1. UN number or ID number

UN-No. (ADR) : Not applicable

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| | | |
|---|---|---|
| UN-No. (IMDG) | : | Not applicable |
| UN-No. (IATA) | : | Not applicable |
| UN-No. (ADN) | : | Not applicable |
| UN-No. (RID) | : | Not applicable |

### 14.2. UN proper shipping name

| | | |
|---|---|---|
| Proper Shipping Name (ADR) | : | Not applicable |
| Proper Shipping Name (IMDG) | : | Not applicable |
| Proper Shipping Name (IATA) | : | Not applicable |
| Proper Shipping Name (ADN) | : | Not applicable |
| Proper Shipping Name (RID) | : | Not applicable |

### 14.3. Transport hazard class(es)

**ADR**

Transport hazard class(es) (ADR) : Not applicable

**IMDG**

Transport hazard class(es) (IMDG) : Not applicable

**IATA**

Transport hazard class(es) (IATA) : Not applicable

**ADN**

Transport hazard class(es) (ADN) : Not applicable

**RID**

Transport hazard class(es) (RID) : Not applicable

### 14.4. Packing group

| | | |
|---|---|---|
| Packing group (ADR) | : | Not applicable |
| Packing group (IMDG) | : | Not applicable |
| Packing group (IATA) | : | Not applicable |
| Packing group (ADN) | : | Not applicable |
| Packing group (RID) | : | Not applicable |

### 14.5. Environmental hazards

Other information : No supplementary information available

### 14.6. Special precautions for user

**Overland transport**

Not applicable

**Transport by sea**

Not applicable

**Air transport**

Not applicable

**Inland waterway transport**

Not applicable

**Rail transport**

Not applicable

### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable



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### SECTION 15: Regulatory information

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

**15.1.1. EU-Regulations**

**REACH Annex XVII (Restriction List)**

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

**REACH Annex XIV (Authorisation List)**

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

**REACH Candidate List (SVHC)**

Contains no substance(s) listed on the REACH Candidate List

**PIC Regulation (Prior Informed Consent)**

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

**POP Regulation (Persistent Organic Pollutants)**

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

**Ozone Regulation (1005/2009)**

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

**Dual-Use Regulation (428/2009)**

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

**Explosives Precursors Regulation (2019/1148)**

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

**Drug Precursors Regulation (273/2004)**

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

**15.1.2. National regulations**

**France**

| Occupational diseases | |
|---|---|
| Code | Description |
| RG 84 | Conditions caused by liquid organic solvents for professional use: saturated or unsaturated aliphatic or cyclic liquid hydrocarbons and mixtures thereof; liquid halogenated hydrocarbons; nitrated derivatives of aliphatic hydrocarbons; alcohols; glycols, glycol ethers; ketones; aldehydes; aliphatic and cyclic ethers, including tetrahydrofuran; esters; dimethylformamide and dimethylacetamine; acetonitrile and propionitrile; pyridine; dimethylsulfone and dimethylsulfoxide |

**Germany**

| | | |
|---|---|---|
| Employment restrictions | : | Observe restrictions according Act on the Protection of Working Mothers (MuSchG).<br>Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG). |
| Water hazard class (WGK) | : | Classification according to AwSV, Annex 1. |
| Hazardous Incident Ordinance (12. BImSchV) | : | Is not subject of the Hazardous Incident Ordinance (12. BImSchV) |

**Netherlands**

| | | |
|---|---|---|
| ABM category | : | Not determined |
| SZW-lijst van kankerverwekkende stoffen | : | None of the components are listed |
| SZW-lijst van mutagene stoffen | : | None of the components are listed |
| SZW-lijst van reprotoxische stoffen – Borstvoeding | : | None of the components are listed |
| SZW-lijst van reprotoxische stoffen – Vruchtbaarheid | : | None of the components are listed |
| SZW-lijst van reprotoxische stoffen – Ontwikkeling | : | None of the components are listed |



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**Denmark**

| | | |
|---|---|---|
| Danish National Regulations | : | Young people below the age of 18 years are not allowed to use the product<br>Pregnant/breastfeeding women working with the product must not be in direct contact with the product |

### 15.2. Chemical safety assessment

No additional information available

## SECTION 16: Other information

| Full text of H- and EUH-statements: | |
|---|---|
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4 |
| H302 | Harmful if swallowed. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| STOT RE 2 | Specific target organ toxicity – Repeated exposure, Category 2 |

Safety Data Sheet (SDS), EU

Disclaimer:
The purpose of this safety data sheet is to provide information about the safety, health and environmental aspects of the product concerned. The information in this safety data sheet is based on current expertise. Proviron provides this information in good faith and to the best of its ability. This data sheet contains no guarantees as to the suitability of the product for a particular purpose or about any particular characteristics of the product. The purchaser/consumer is personally responsible for his/her use of the product and for taking precautions appropriate to its use.
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## *4.3 Putoline® Ceramic Grease PV.20.01*

# Ceramic Grease

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 29-8-2018 Revision date: 21-6-2024 Supersedes version of: 13-10-2022 Version: 1.3

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

### 1.1. Product identifier

Product form : Mixture
Trade name : Ceramic Grease
Product code : PV.20.01
Type of product : Paste
Product group : Trade product

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

#### 1.2.1. Relevant identified uses

Main use category : Industrial use,Professional use,Consumer use
Use of the substance/mixture : Lubricant
Function or use category : Lubricants and additives

#### 1.2.2. Uses advised against

No additional information available

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

Putoline Oil
Dollegoorweg 15
NL 7602 EC Almelo
Netherlands
T 0031 (0)546 81 81 65
vib@putoline.com

### 1.4. Emergency telephone number

| Country/Area | Organisation/Company | Address | Emergency number | Comment |
|---|---|---|---|---|
| Ireland | National Poisons Information Centre<br>Beaumont Hospital | PO Box 1297<br>Beaumont Road<br>9 | +353 1 809 2566 (Healthcare professionals-24/7)<br>+353 1 809 2166 (public, 8am - 10pm, 7/7) | |
| United Kingdom | National Poisons Information Service (Cardiff Centre)<br>University Hospital Llandough | Penlan Road<br>CF64 2XX | 0344 892 0111 | Only for healthcare professionals |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Not classified

**Adverse physicochemical, human health and environmental effects**

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

### 2.2. Label elements

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

No labelling applicable

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### 2.3. Other hazards

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of REACH Annex II

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation : Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact : None under normal conditions.
Symptoms/effects after eye contact : None under normal conditions.
Symptoms/effects after ingestion : None under normal conditions.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : Do not use a heavy water stream.

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

Fire hazard : Combustible liquid.
Explosion hazard : No direct explosion hazard.
Hazardous decomposition products in case of fire : Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.

### 5.3. Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.



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## Ceramic Grease

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### SECTION 6: Accidental release measures

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

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

##### 6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

#### 6.2. Environmental precautions

Avoid release to the environment.

#### 6.3. Methods and material for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
Methods for cleaning up : Mechanically recover the product.
Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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

Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Keep cool. Protect from sunlight.
Storage temperature : < 40 °C
Packaging materials : Store always product in container of same material as original container.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### 8.1.1 National occupational exposure and biological limit values

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| Ceramic Grease | |
|---|---|
| **EU - Indicative Occupational Exposure Limit (IOEL)** | |
| Exposure limits/standards for materials that can be formed when handling this product. When mists/aerosols can occur the following is recommended | 5 mg/m³ - ACGIH TLV (inhalable fraction). |

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

No additional information available

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

**Appropriate engineering controls:**
Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

**Personal protective equipment:**
Wear recommended personal protective equipment.

**Personal protective equipment symbol(s):**



#### 8.2.2.1. Eye and face protection

**Eye protection:**
Safety glasses

#### 8.2.2.2. Skin protection

**Skin and body protection:**
Wear suitable protective clothing

**Hand protection:**
Protective gloves

#### 8.2.2.3. Respiratory protection

**Respiratory protection:**
In case of insufficient ventilation, wear suitable respiratory equipment

#### 8.2.2.4. Thermal hazards

No additional information available

#### 8.2.3. Environmental exposure controls

**Environmental exposure controls:**
Avoid release to the environment.



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### SECTION 9: Physical and chemical properties

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

| | | |
|---|---|---|
| Physical state | : | Liquid |
| Colour | : | Beige. |
| Appearance | : | Paste. |
| Odour | : | characteristic. |
| Odour threshold | : | Not available |
| Melting point | : | Not applicable |
| Freezing point | : | Not applicable |
| Boiling point | : | Not available |
| Flammability | : | Non flammable. |
| Lower explosion limit | : | Not available |
| Upper explosion limit | : | Not available |
| Flash point | : | Not applicable |
| Auto-ignition temperature | : | Not applicable |
| Decomposition temperature | : | Not available |
| pH | : | Not available |
| Viscosity, kinematic | : | Not applicable |
| Solubility | : | Water: Insoluble / Slightly miscible |
| Partition coefficient n-octanol/water (Log Kow) | : | Not available |
| Vapour pressure | : | Not available |
| Vapour pressure at 50°C | : | Not available |
| Density | : | 1,03 – 1,13 g/cm³ |
| Relative density | : | Not applicable |
| Relative vapour density at 20°C | : | Not available |
| Particle characteristics | : | Not applicable |

#### 9.2. Other information

##### 9.2.1. Information with regard to physical hazard classes

No additional information available

##### 9.2.2. Other safety characteristics

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

Reacts violently with (strong) oxidizers.

#### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

#### 10.5. Incompatible materials

No additional information available

#### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.



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### SECTION 11: Toxicological information

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

| | | |
|---|---|---|
| Acute toxicity (oral) | : | Not classified |
| Acute toxicity (dermal) | : | Not classified |
| Acute toxicity (inhalation) | : | Not classified |
| Skin corrosion/irritation | : | Not classified |
| Serious eye damage/irritation | : | Not classified |
| Respiratory or skin sensitisation | : | Not classified |
| Germ cell mutagenicity | : | Not classified |
| Carcinogenicity | : | Not classified |
| Reproductive toxicity | : | Not classified |
| STOT-single exposure | : | Not classified |
| STOT-repeated exposure | : | Not classified |
| Aspiration hazard | : | Not classified |

| Ceramic Grease | |
|---|---|
| Viscosity, kinematic | Not applicable |

#### 11.2. Information on other hazards

No additional information available

### SECTION 12: Ecological information

#### 12.1. Toxicity

| | | |
|---|---|---|
| Ecology - general | : | The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment. |
| Hazardous to the aquatic environment, short–term (acute) | : | Not classified |
| Hazardous to the aquatic environment, long–term (chronic) | : | Not classified |

#### 12.2. Persistence and degradability

| Ceramic Grease | |
|---|---|
| Persistence and degradability | Rapidly degradable |

#### 12.3. Bioaccumulative potential

No additional information available

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

No additional information available

#### 12.6. Endocrine disrupting properties

No additional information available

#### 12.7. Other adverse effects

No additional information available



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## Ceramic Grease

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

| | | |
|---|---|---|
| Regional waste regulation | : | Disposal must be done according to official regulations. |
| Waste treatment methods | : | Dispose of contents/container in accordance with licensed collector's sorting instructions. |
| Sewage disposal recommendations | : | Disposal must be done according to official regulations. |
| Product/Packaging disposal recommendations | : | Disposal must be done according to official regulations. |
| Additional information | : | Do not re-use empty containers. |

### SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

| ADR | IMDG | IATA | ADN | RID |
|---|---|---|---|---|
| **14.1. UN number or ID number** | | | | |
| Not regulated for transport | | | | |
| **14.2. UN proper shipping name** | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| **14.3. Transport hazard class(es)** | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| **14.4. Packing group** | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| **14.5. Environmental hazards** | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| No supplementary information available | | | | |

#### 14.6. Special precautions for user

**Overland transport**
Not regulated

**Transport by sea**
Not regulated

**Air transport**
Not regulated

**Inland waterway transport**
Not regulated

**Rail transport**
Not regulated

#### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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### SECTION 15: Regulatory information

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

**15.1.1. EU-Regulations**

**REACH Annex XVII (Restriction List)**

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

**REACH Annex XIV (Authorisation List)**

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

**REACH Candidate List (SVHC)**

Contains no substance(s) listed on the REACH Candidate List

**PIC Regulation (Prior Informed Consent)**

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

**POP Regulation (Persistent Organic Pollutants)**

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

**Ozone Regulation (1005/2009)**

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

**Dual-Use Regulation (428/2009)**

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

**Explosives Precursors Regulation (2019/1148)**

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

**Drug Precursors Regulation (273/2004)**

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

**15.1.2. National regulations**

No additional information available

#### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

### SECTION 16: Other information

**Indication of changes**

| Section | Changed item | Change | Comments |
|---|---|---|---|
| | Revision date | Modified | |
| | Supersedes | Modified | |
| 4.1 | First-aid measures general | Added | |
| 4.2 | Symptoms/effects after eye contact | Added | |
| 4.2 | Symptoms/effects after ingestion | Added | |
| 4.2 | Symptoms/effects after inhalation | Added | |
| 4.2 | Symptoms/effects after skin contact | Added | |
| 5.2 | Explosion hazard | Added | |
| 5.2 | Hazardous decomposition products in case of fire | Modified | |
| 5.3 | Firefighting instructions | Added | |

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| Indication of changes | | | |
|---|---|---|---|
| **Section** | **Changed item** | **Change** | **Comments** |
| 6.1 | Protective equipment | Added | |
| 6.1 | Emergency procedures | Added | |
| 6.1 | General measures | Added | |
| 6.3 | For containment | Added | |
| 7.1 | Additional hazards when processed | Added | |
| 7.2 | Technical measures | Added | |
| 7.2 | Packaging materials | Added | |
| 7.2 | Storage conditions | Modified | |
| 8.2 | Personal protective equipment | Added | |
| 10.3 | Possibility of hazardous reactions | Modified | |
| 13.1 | Additional information | Added | |
| 13.1 | Sewage disposal recommendations | Added | |
| 13.1 | Waste disposal recommendations | Added | |
| 13.1 | Regional waste regulation | Added | |
| 13.1 | H code | Added | |

| Abbreviations and acronyms: | |
|---|---|
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BLV | Biological limit value |
| BOD | Biochemical oxygen demand (BOD) |
| COD | Chemical oxygen demand (COD) |
| DMEL | Derived Minimal Effect level |
| DNEL | Derived-No Effect Level |
| EC-No. | European Community number |
| EC50 | Median effective concentration |
| EN | European Standard |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Median lethal concentration |
| LD50 | Median lethal dose |
| LOAEL | Lowest Observed Adverse Effect Level |
| NOAEC | No-Observed Adverse Effect Concentration |
| NOAEL | No-Observed Adverse Effect Level |
| NOEC | No-Observed Effect Concentration |



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| Abbreviations and acronyms: | |
|---|---|
| OECD | Organisation for Economic Co-operation and Development |
| OEL | Occupational Exposure Limit |
| PBT | Persistent Bioaccumulative Toxic |
| PNEC | Predicted No-Effect Concentration |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS | Safety Data Sheet |
| STP | Sewage treatment plant |
| ThOD | Theoretical oxygen demand (ThOD) |
| TLM | Median Tolerance Limit |
| VOC | Volatile Organic Compounds |
| CAS-No. | Chemical Abstract Service number |
| N.O.S. | Not Otherwise Specified |
| vPvB | Very Persistent and Very Bioaccumulative |
| ED | Endocrine disrupting properties |

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.



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## *4.4 Krytox™ GPL 205*

**SAFETY DATA SHEET**
According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Chemours™

**Krytox™ GPL 205**

| Version | Revision Date: | SDS Number: | Date of last issue: 02.11.2023 |
|---|---|---|---|
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier**

Trade name : Krytox™ GPL 205

SDS-Identcode : 130000024223

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

Use of the Substance/Mixture : Lubricant

Recommended restrictions on use : For industrial use only.
Do not use or resell Chemours™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use. For further information, please contact your Chemours representative.

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

Company : Chemours Netherlands B.V.
Baanhoekweg 22
3313 LA Dordrecht Netherlands

Telephone : +31-(0)-78-630-1011

Telefax : +31-78-6163737

E-mail address of person responsible for the SDS : sds-support@chemours.com

**1.4 Emergency telephone number**

+(44)-870-8200418 (CHEMTREC - Recommended)

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

**Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)**

Not a hazardous substance or mixture.

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**2.2 Label elements**

**Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)**

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required

**2.3 Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
The thermal decomposition vapours of fluorinated plastics may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

## SECTION 3: Composition/information on ingredients

**3.2 Mixtures**

**Components**

Remarks : No hazardous ingredients

## SECTION 4: First aid measures

**4.1 Description of first aid measures**

Protection of first-aiders : No special precautions are necessary for first aid responders.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Wash with water and soap as a precaution.
Get medical attention if symptoms occur.

In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water.

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

Symptoms : Inhalation may provoke the following symptoms:
Irritation
Lung oedema

Eye contact may provoke the following symptoms
Blurred vision
Discomfort



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Lachrymation

Skin contact may provoke the following symptoms:
Irritation
Redness

Inhalation may provoke the following symptoms:
Irritation
Shortness of breath

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

Treatment : Treat symptomatically and supportively.

## SECTION 5: Firefighting measures

**5.1 Extinguishing media**

Suitable extinguishing media : Not applicable
Will not burn

Unsuitable extinguishing media : Not applicable
Will not burn

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

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Hydrogen fluoride
carbonyl fluoride
potentially toxic fluorinated compounds
aerosolized particulates
Carbon oxides

**5.3 Advice for firefighters**

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

## SECTION 6: Accidental release measures

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

Personal precautions : Follow safe handling advice (see section 7) and personal pro-



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tective equipment recommendations (see section 8).

**6.2 Environmental precautions**

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Retain and dispose of contaminated wash water.
If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

**6.3 Methods and material for containment and cleaning up**

Methods for cleaning up : Soak up with inert absorbent material.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

**6.4 Reference to other sections**

See sections: 7, 8, 11, 12 and 13.

## SECTION 7: Handling and storage

**7.1 Precautions for safe handling**

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Take care to prevent spills, waste and minimize release to the environment.

Do not breathe decomposition products.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

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

Requirements for storage : Keep in properly labelled containers. Store in accordance with



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areas and containers — the particular national regulations.

Advice on common storage : No special restrictions on storage with other products.

Further information on storage stability : No decomposition if stored and applied as directed.

**7.3 Specific end use(s)**

Specific use(s) : No data available

## SECTION 8: Exposure controls/personal protection

**8.1 Control parameters**

**Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**Occupational exposure limits of decomposition products**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|---|---|---|---|---|
| hydrofluoric acid | 7664-39-3 | TWA | 1.8 ppm<br>1.5 mg/m3<br>(Fluorine) | GB EH40 |
| | | STEL | 3 ppm<br>2.5 mg/m3<br>(Fluorine) | GB EH40 |
| | | TWA | 1.8 ppm<br>1.5 mg/m3 | 2000/39/EC |
| | Further information: Indicative | | | |
| | | STEL | 3 ppm<br>2.5 mg/m3 | 2000/39/EC |
| | Further information: Indicative | | | |
| Carbonyl difluoride | 353-50-4 | TWA | 2.5 mg/m3<br>(Fluorine) | 2000/39/EC |
| | Further information: Indicative | | | |
| Carbon dioxide | 124-38-9 | TWA | 5,000 ppm<br>9,150 mg/m3 | GB EH40 |
| | | STEL | 15,000 ppm<br>27,400 mg/m3 | GB EH40 |
| | | TWA | 5,000 ppm<br>9,000 mg/m3 | 2006/15/EC |
| | Further information: Indicative | | | |
| Carbon monoxide | 630-08-0 | TWA | 30 ppm<br>35 mg/m3 | GB EH40 |
| | | STEL | 200 ppm<br>232 mg/m3 | GB EH40 |
| | | TWA | 20 ppm<br>23 mg/m3 | GB EH40 |
| | | STEL | 100 ppm | GB EH40 |



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| | | | | |
|---|---|---|---|---|
| | | | 117 mg/m3 | |
| | | STEL | 100 ppm<br>117 mg/m3 | 2017/164/EU |
| | Further information: Indicative | | | |
| | | TWA | 20 ppm<br>23 mg/m3 | 2017/164/EU |
| | Further information: Indicative | | | |
| | | TWA | 20 ppm<br>23 mg/m3 | 2004/37/EC |
| | Further information: Carcinogens or mutagens | | | |
| | | STEL | 100 ppm<br>117 mg/m3 | 2004/37/EC |
| | Further information: Carcinogens or mutagens | | | |

**8.2 Exposure controls**

**Engineering measures**
Processing may form hazardous compounds (see section 10).
Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

**Personal protective equipment**

Eye/face protection : Wear the following personal protective equipment:
Safety glasses
Equipment should conform to BS EN 166

Hand protection

Remarks : Wash hands before breaks and at the end of workday.

Skin and body protection : Skin should be washed after contact.

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Equipment should conform to BS EN 14387

Filter type : Combined particulates, acidic gas/vapour and organic vapour type (AE-P)

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

Appearance : Grease

Colour : white

Odour : odourless

Odour Threshold : No data available



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| | | |
|---|---|---|
| pH | : | 7 |
| Melting point/freezing point | : | 320 °C |
| Initial boiling point and boiling range | : | No data available |
| Flash point | : | Method: Pensky-Martens closed cup<br>Not applicable |
| Evaporation rate | : | Not applicable |
| Flammability (solid, gas) | : | Will not burn |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapour pressure | : | Not applicable |
| Relative vapour density | : | Not applicable |
| Relative density | : | 1.89 - 1.93 (24 °C) |
| Solubility(ies)<br>Water solubility | : | insoluble |
| Partition coefficient: n-octanol/water | : | Not applicable |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | 300 °C |
| Viscosity<br>Viscosity, kinematic | : | Not applicable |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |

**9.2 Other information**

| | | |
|---|---|---|
| Particle size | : | No data available |

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

Not classified as a reactivity hazard.



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**10.2 Chemical stability**
Stable under normal conditions.

**10.3 Possibility of hazardous reactions**
Hazardous reactions : Hazardous decomposition products will be formed at elevated temperatures.

**10.4 Conditions to avoid**
Conditions to avoid : None known.

**10.5 Incompatible materials**
Materials to avoid : None.

**10.6 Hazardous decomposition products**
Thermal decomposition : hydrofluoric acid
Carbonyl difluoride
Carbon dioxide
Carbon monoxide

## SECTION 11: Toxicological information

**11.1 Information on toxicological effects**
Information on likely routes of exposure : Skin contact
Ingestion
Eye contact

**Acute toxicity**
Not classified based on available information.

**Skin corrosion/irritation**
Not classified based on available information.

**Serious eye damage/eye irritation**
Not classified based on available information.

**Respiratory or skin sensitisation**

**Skin sensitisation**
Not classified based on available information.

**Respiratory sensitisation**
Not classified based on available information.

**Germ cell mutagenicity**
Not classified based on available information.

**Carcinogenicity**
Not classified based on available information.

**Reproductive toxicity**
Not classified based on available information.



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**STOT - single exposure**
Not classified based on available information.

**STOT - repeated exposure**
Not classified based on available information.

**Aspiration toxicity**
Not classified based on available information.

## SECTION 12: Ecological information

**12.1 Toxicity**
No data available

**12.2 Persistence and degradability**
No data available

**12.3 Bioaccumulative potential**
No data available

**12.4 Mobility in soil**
No data available

**12.5 Results of PBT and vPvB assessment**

**Product:**

| | | |
|---|---|---|
| Assessment | : | This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. |

**12.6 Other adverse effects**

**Product:**

| | | |
|---|---|---|
| Endocrine disrupting potential | : | This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f). |

## SECTION 13: Disposal considerations

**13.1 Waste treatment methods**

| | | |
|---|---|---|
| Product | : | Dispose of in accordance with local regulations.<br>According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.<br>Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.<br>Do not dispose of waste into sewer. |
| Contaminated packaging | : | Empty containers should be taken to an approved waste handling site for recycling or disposal. |



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If not otherwise specified: Dispose of as unused product.

## SECTION 14: Transport information

**14.1 UN number**

| | | |
|---|---|---|
| **ADN** | : | Not regulated as a dangerous good |
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

**14.2 UN proper shipping name**

| | | |
|---|---|---|
| **ADN** | : | Not regulated as a dangerous good |
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

**14.3 Transport hazard class(es)**

| | | |
|---|---|---|
| **ADN** | : | Not regulated as a dangerous good |
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

**14.4 Packing group**

| | | |
|---|---|---|
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| **IMDG** | : | Not regulated as a dangerous good |
| **IATA (Cargo)** | : | Not regulated as a dangerous good |
| **IATA (Passenger)** | : | Not regulated as a dangerous good |

**14.5 Environmental hazards**
Not regulated as a dangerous good

**14.6 Special precautions for user**
Not applicable

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**
Remarks : Not applicable for product as supplied.



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### SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

| | | |
|---|---|---|
| UK REACH List of restrictions (Annex 17) | : | Not applicable |
| UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation | : | Not applicable |
| The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain) | : | Not applicable |
| Regulation (EC) No 1005/2009 on substances that deplete the ozone layer | : | Not applicable |
| UK REACH List of substances subject to authorisation (Annex XIV) | : | Not applicable |
| GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation | : | Not applicable |

Control of Major Accident Hazards Regulations 2015 (COMAH)
Not applicable

**15.2 Chemical safety assessment**

A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

| | | |
|---|---|---|
| Other information | : | Krytox™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC.<br>Chemours™ and the Chemours Logo are trademarks of The Chemours Company.<br>Before use read Chemours safety information.<br>For further information contact the local Chemours office or nominated distributors.<br><br>Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines. |

**Full text of other abbreviations**

| | | |
|---|---|---|
| 2000/39/EC | : | Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values |
| 2004/37/EC | : | Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens |



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| | | |
|---|---|---|
| | | at work |
| 2006/15/EC | : | Europe. Indicative occupational exposure limit values |
| 2017/164/EU | : | Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values |
| GB EH40 | : | UK. EH40 WEL - Workplace Exposure Limits |
| 2000/39/EC / TWA | : | Limit Value - eight hours |
| 2000/39/EC / STEL | : | Short term exposure limit |
| 2004/37/EC / STEL | : | Short term exposure limit |
| 2004/37/EC / TWA | : | Long term exposure limit |
| 2006/15/EC / TWA | : | Limit Value - eight hours |
| 2017/164/EU / STEL | : | Short term exposure limit |
| 2017/164/EU / TWA | : | Limit Value - eight hours |
| GB EH40 / TWA | : | Long-term exposure limit (8-hour TWA reference period) |
| GB EH40 / STEL | : | Short-term exposure limit (15-minute reference period) |

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

| | | |
|---|---|---|
| Sources of key data used to compile the Safety Data Sheet | : | Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/ |



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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

GB / EN



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## *4.5 Krytox™ GPL 206*

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According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Chemours™

**Krytox™ GPL 206**

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

**1.1 Product identifier**

Trade name : Krytox™ GPL 206

SDS-Identcode : 130000031500

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

Use of the Substance/Mixture : Lubricant

Recommended restrictions on use : For industrial use only.
Do not use or resell Chemours™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use. For further information, please contact your Chemours representative.

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

Company : Chemours Netherlands B.V.
Baanhoekweg 22
3313 LA Dordrecht Netherlands

Telephone : +31-(0)-78-630-1011

Telefax : +31-78-6163737

E-mail address of person responsible for the SDS : sds-support@chemours.com

**1.4 Emergency telephone number**

+(44)-870-8200418 (CHEMTREC - Recommended)

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

**Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)**

Not a hazardous substance or mixture.

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### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)**

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
The thermal decomposition vapours of fluorinated plastics may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

**Components**

Remarks : No hazardous ingredients

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Protection of first-aiders : No special precautions are necessary for first aid responders.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Wash with water and soap as a precaution.
Get medical attention if symptoms occur.

In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water.

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

Symptoms : Inhalation may provoke the following symptoms:
Irritation
Lung oedema

Eye contact may provoke the following symptoms
Blurred vision
Discomfort



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Lachrymation

Skin contact may provoke the following symptoms:
Irritation
Redness

Inhalation may provoke the following symptoms:
Irritation
Shortness of breath

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

Treatment : Treat symptomatically and supportively.

## SECTION 5: Firefighting measures

**5.1 Extinguishing media**

Suitable extinguishing media : Not applicable
Will not burn

Unsuitable extinguishing media : Not applicable
Will not burn

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

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Hydrogen fluoride
carbonyl fluoride
potentially toxic fluorinated compounds
aerosolized particulates
Carbon oxides

**5.3 Advice for firefighters**

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

## SECTION 6: Accidental release measures

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

Personal precautions : Follow safe handling advice (see section 7) and personal pro-



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tective equipment recommendations (see section 8).

**6.2 Environmental precautions**

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Retain and dispose of contaminated wash water.
If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

**6.3 Methods and material for containment and cleaning up**

Methods for cleaning up : Soak up with inert absorbent material.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

**6.4 Reference to other sections**

See sections: 7, 8, 11, 12 and 13.

## SECTION 7: Handling and storage

**7.1 Precautions for safe handling**

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Take care to prevent spills, waste and minimize release to the environment.

Do not breathe decomposition products.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

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

Requirements for storage : Keep in properly labelled containers. Store in accordance with



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areas and containers — the particular national regulations.

Advice on common storage : No special restrictions on storage with other products.

Further information on storage stability : No decomposition if stored and applied as directed.

**7.3 Specific end use(s)**

Specific use(s) : No data available

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

**8.1 Control parameters**

**Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

**Occupational exposure limits of decomposition products**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|---|---|---|---|---|
| hydrofluoric acid | 7664-39-3 | TWA | 1.8 ppm<br>1.5 mg/m3<br>(Fluorine) | GB EH40 |
| | | STEL | 3 ppm<br>2.5 mg/m3<br>(Fluorine) | GB EH40 |
| | | TWA | 1.8 ppm<br>1.5 mg/m3 | 2000/39/EC |
| | Further information: Indicative | | | |
| | | STEL | 3 ppm<br>2.5 mg/m3 | 2000/39/EC |
| | Further information: Indicative | | | |
| Carbonyl difluoride | 353-50-4 | TWA | 2.5 mg/m3<br>(Fluorine) | 2000/39/EC |
| | Further information: Indicative | | | |
| Carbon dioxide | 124-38-9 | TWA | 5,000 ppm<br>9,150 mg/m3 | GB EH40 |
| | | STEL | 15,000 ppm<br>27,400 mg/m3 | GB EH40 |
| | | TWA | 5,000 ppm<br>9,000 mg/m3 | 2006/15/EC |
| | Further information: Indicative | | | |
| Carbon monoxide | 630-08-0 | TWA | 30 ppm<br>35 mg/m3 | GB EH40 |
| | | STEL | 200 ppm<br>232 mg/m3 | GB EH40 |
| | | TWA | 20 ppm<br>23 mg/m3 | GB EH40 |
| | | STEL | 100 ppm | GB EH40 |



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| | | | | |
|---|---|---|---|---|
| | | | 117 mg/m3 | |
| | | STEL | 100 ppm<br>117 mg/m3 | 2017/164/EU |
| | Further information: Indicative | | | |
| | | TWA | 20 ppm<br>23 mg/m3 | 2017/164/EU |
| | Further information: Indicative | | | |
| | | TWA | 20 ppm<br>23 mg/m3 | 2004/37/EC |
| | Further information: Carcinogens or mutagens | | | |
| | | STEL | 100 ppm<br>117 mg/m3 | 2004/37/EC |
| | Further information: Carcinogens or mutagens | | | |

**8.2 Exposure controls**

**Engineering measures**

Processing may form hazardous compounds (see section 10).
Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

**Personal protective equipment**

Eye/face protection : Wear the following personal protective equipment:
Safety glasses
Equipment should conform to BS EN 166

Hand protection

Remarks : Wash hands before breaks and at the end of workday.

Skin and body protection : Skin should be washed after contact.

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Equipment should conform to BS EN 14387

Filter type : Combined particulates, acidic gas/vapour and organic vapour type (AE-P)

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

Appearance : Grease

Colour : white

Odour : odourless

Odour Threshold : No data available



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| | | |
|---|---|---|
| pH | : | 7 |
| Melting point/freezing point | : | 320 °C |
| Initial boiling point and boiling range | : | No data available |
| Flash point | : | Method: Pensky-Martens closed cup<br>Not applicable |
| Evaporation rate | : | Not applicable |
| Flammability (solid, gas) | : | Will not burn |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapour pressure | : | Not applicable |
| Relative vapour density | : | Not applicable |
| Relative density | : | 1.89 - 1.93 (24 °C) |
| Solubility(ies)<br>Water solubility | : | insoluble |
| Partition coefficient: n-octanol/water | : | Not applicable |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | 300 °C |
| Viscosity<br>Viscosity, kinematic | : | Not applicable |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |

**9.2 Other information**

| | | |
|---|---|---|
| Particle size | : | No data available |

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

Not classified as a reactivity hazard.



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**10.2 Chemical stability**
Stable under normal conditions.

**10.3 Possibility of hazardous reactions**
Hazardous reactions : Hazardous decomposition products will be formed at elevated temperatures.

**10.4 Conditions to avoid**
Conditions to avoid : None known.

**10.5 Incompatible materials**
Materials to avoid : None.

**10.6 Hazardous decomposition products**
Thermal decomposition : hydrofluoric acid
Carbonyl difluoride
Carbon dioxide
Carbon monoxide

## SECTION 11: Toxicological information

**11.1 Information on toxicological effects**
Information on likely routes of exposure : Skin contact
Ingestion
Eye contact

**Acute toxicity**
Not classified based on available information.

**Skin corrosion/irritation**
Not classified based on available information.

**Serious eye damage/eye irritation**
Not classified based on available information.

**Respiratory or skin sensitisation**

**Skin sensitisation**
Not classified based on available information.

**Respiratory sensitisation**
Not classified based on available information.

**Germ cell mutagenicity**
Not classified based on available information.

**Carcinogenicity**
Not classified based on available information.

**Reproductive toxicity**
Not classified based on available information.



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**STOT - single exposure**
Not classified based on available information.

**STOT - repeated exposure**
Not classified based on available information.

**Aspiration toxicity**
Not classified based on available information.

## SECTION 12: Ecological information

**12.1 Toxicity**
No data available

**12.2 Persistence and degradability**
No data available

**12.3 Bioaccumulative potential**
No data available

**12.4 Mobility in soil**
No data available

**12.5 Results of PBT and vPvB assessment**

**Product:**

| | | |
|---|---|---|
| Assessment | : | This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. |

**12.6 Other adverse effects**

**Product:**

| | | |
|---|---|---|
| Endocrine disrupting potential | : | This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f). |

## SECTION 13: Disposal considerations

**13.1 Waste treatment methods**

| | | |
|---|---|---|
| Product | : | Dispose of in accordance with local regulations.<br>According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.<br>Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.<br>Do not dispose of waste into sewer. |
| Contaminated packaging | : | Empty containers should be taken to an approved waste handling site for recycling or disposal. |



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If not otherwise specified: Dispose of as unused product.

## SECTION 14: Transport information

**14.1 UN number**

| | | |
|---|---|---|
| **ADN** | : | Not regulated as a dangerous good |
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

**14.2 UN proper shipping name**

| | | |
|---|---|---|
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| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

**14.3 Transport hazard class(es)**

| | | |
|---|---|---|
| **ADN** | : | Not regulated as a dangerous good |
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| **IMDG** | : | Not regulated as a dangerous good |
| **IATA** | : | Not regulated as a dangerous good |

**14.4 Packing group**

| | | |
|---|---|---|
| **ADN** | : | Not regulated as a dangerous good |
| **ADR** | : | Not regulated as a dangerous good |
| **RID** | : | Not regulated as a dangerous good |
| **IMDG** | : | Not regulated as a dangerous good |
| **IATA (Cargo)** | : | Not regulated as a dangerous good |
| **IATA (Passenger)** | : | Not regulated as a dangerous good |

**14.5 Environmental hazards**
Not regulated as a dangerous good

**14.6 Special precautions for user**
Not applicable

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**
Remarks : Not applicable for product as supplied.



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### SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

| | | |
|---|---|---|
| UK REACH List of restrictions (Annex 17) | : | Not applicable |
| UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation | : | Not applicable |
| The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain) | : | Not applicable |
| Regulation (EC) No 1005/2009 on substances that deplete the ozone layer | : | Not applicable |
| UK REACH List of substances subject to authorisation (Annex XIV) | : | Not applicable |
| GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation | : | Not applicable |

Control of Major Accident Hazards Regulations 2015 (COMAH)
Not applicable

**15.2 Chemical safety assessment**

A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

| | | |
|---|---|---|
| Other information | : | Krytox™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC.<br>Chemours™ and the Chemours Logo are trademarks of The Chemours Company.<br>Before use read Chemours safety information.<br>For further information contact the local Chemours office or nominated distributors.<br><br>Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines. |

**Full text of other abbreviations**

| | | |
|---|---|---|
| 2000/39/EC | : | Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values |
| 2004/37/EC | : | Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens |



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| | | |
|---|---|---|
| | | at work |
| 2006/15/EC | : | Europe. Indicative occupational exposure limit values |
| 2017/164/EU | : | Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values |
| GB EH40 | : | UK. EH40 WEL - Workplace Exposure Limits |
| 2000/39/EC / TWA | : | Limit Value - eight hours |
| 2000/39/EC / STEL | : | Short term exposure limit |
| 2004/37/EC / STEL | : | Short term exposure limit |
| 2004/37/EC / TWA | : | Long term exposure limit |
| 2006/15/EC / TWA | : | Limit Value - eight hours |
| 2017/164/EU / STEL | : | Short term exposure limit |
| 2017/164/EU / TWA | : | Limit Value - eight hours |
| GB EH40 / TWA | : | Long-term exposure limit (8-hour TWA reference period) |
| GB EH40 / STEL | : | Short-term exposure limit (15-minute reference period) |

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

| | | |
|---|---|---|
| Sources of key data used to compile the Safety Data Sheet | : | Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/ |



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