Krytox™ GPL 106, 206, 216, 226

Performance Lubricants

High performance grease and oil for bearings, valves, seals, and other applications over a wide temperature range

Product Information

Krytox™ oils and greases are based on perfluoropolyether (PFPE) oils. This series of synthetic fluorinated lubricants are used in extreme conditions, such as continuous high temperatures up to 260 °C (500 °F), and will survive short-term peak temperatures of up to 270 °C (518 °F). Chemically inert and safe for use around most chemicals, these lubricants are nonflammable and are also safe for use in oxygen service. Krytox™ oils and greases do not damage plastics or elastomers, nor cause corrosion to metals. They are commonly used as lubricants in aerospace, automotive, industrial, and semiconductor applications, as well as in solving many other routine lubrication problems. In addition, they provide exceptionally long lifetimes in sealed-for-life bearings and extend re-lubrication intervals in bearings that require re-lubrication.

Krytox™ GPL 106 Oil

Krytox™ GPL 106 oil is a clear, colorless, fluorinated synthetic oil that is non-reactive, nonflammable, safe in chemical and oxygen service, and is long lasting. Krytox™ is a PFPE—also called perfluoroalkylether (PFAE) or perfluoropolyalkylether (PFPAE)—with the following chemical structure:

$$F\text{-}(CF\text{-}CF_2\text{-}O)_n\text{-}CF_2CF_3 \quad \text{where } n = 10\text{–}60$$
$$\quad\;\; | \qquad\qquad\qquad\qquad\quad$$
$$\quad\;\; CF_3$$

The polymer chain is completely saturated and contains only carbon, oxygen, and fluorine. On a weight basis, a typical Krytox™ oil contains 21.6% carbon, 9.4% oxygen, and 69.0% fluorine.

Krytox™ GPL 206 Grease

Krytox™ GPL 206 grease is PTFE thickened, contains no additives, and can be used on components that come in contact with chemicals. Typical applications include valves, instruments, or bearings in contact with chemicals, including alcohols, ammonia, solvents, steam, acids and bases, and oxygen systems, such as LOX and GOX. They are commonly used as seal and O-ring lubricants, and are compatible with all types of seals.

Krytox™ GPL 216 Grease

Krytox™ GPL 216 grease contains molybdenum disulfide for extreme pressure (EP) conditions and should be used for slow speed or heavily loaded applications, where there is no danger of the molybdenum disulfide additive reacting with chemicals or causing contamination.

Krytox™ GPL 226 Grease

Krytox™ GPL 226 grease contains an anti-corrosion/anti-wear inhibitor and is ideal for corrosive environments, where there is no danger of the sodium nitrite additive reacting with chemicals or causing contamination problems. Typical applications are automotive bearings, sealed pump bearings, electric motor bearings, and general-purpose bearings.

Krytox™ oils and greases are silicone free. They do not contain any VOC materials or chlorine, and are not hazardous to the atmosphere or ozone layer. They are biologically and environmentally inert.

The fully fluorinated Krytox™ high-temperature stability provides bottom-line savings from improved reliability, and a reduction in grease usage and manpower through extended re-lubrication intervals. Excellent film strength reduces wear to reduce maintenance costs. Under high loads, the viscosity increases to provide support and absorb the pressure.

Preparing the Application for Krytox™

New components often have organic rust preventive oils or greases on them to prevent damage while they are in storage before use. New bearings should be inspected for damage and cleanliness before use. The components must be completely cleaned of greases or preservative oils when using Krytox™ as a lubricant. Failure to do so could result in reduced bearing life. Bearing life tests on un-cleaned bearings have shown reduced life in high temperature, high speed tests, where the bearing was filled with a minimum

amount of grease. The preservatives coat the metal surface to prevent rusting; so, they can also prevent the grease from adhering, causing them to be thrown off by the action of the bearing. They could also oxidize and harden, and can create debris that will contaminate the grease.

These greases are compatible with other PFPE/PTFE greases, but PFPE lubricants should not be mixed with other common types of lubricants.

Storage and Shelf Life

Because of the inert, non-oxidizing nature of the ingredients, Krytox™ grease and oil lubricants have an indefinite shelf life, if unopened and stored in a clean, dry location. Greases might show oil separation after extended storage, but mixing the free oil back into the grease will return the grease to normal useable condition.

Product Properties of Krytox™ GPL Lubricants

Typical Properties	GPL 106	GPL 206	GPL 216	GPL 226
Anti-Corrosion Additive	No	No	No	Yes
Extreme Pressure Additive	No	No	Yes	No
Anti-Rust Rating, ASTM D1743	NA	NA	NA	Pass
Appearance	Clear Oil	White, Creamy Consistency	Black, Creamy Consistency	White, Creamy Consistency
4 Ball Wear, ASTM D4172 (Oil)/D2266 (Grease) 40 kg, 1200 rpm, 1 hr at 75 °C (167 °F)	0.66 mm	0.97 mm	1.29 mm	0.81 mm
4 Ball EP, ASTM D2783 (Oil)/2596 (Grease) LWI/Weld Load	108.2/400 kg	139.4/800 kg	139.0/620 kg	199.9/Above 800 kg*
Estimated Useful Temperature Range	–36– 260 °C (–33–500 °F)			
Base Oil Viscosity, cSt 20 °C (68 °F) 40 °C (104 °F) 100 °C (212 °F) 204 °C (400 °F)	822 243 25 4.1			
Oil Viscosity Index	134			
Oil Separation, wt% after 30 hr, 99 °C (210 °F)	4			
Max. Oil Volatility, % in 22 hr, D2595 121 °C (250 °F) 204 °C (400 °F)	<1 <3			
Dropping Point	NA			
Standard NLGI Grade (Others Available on Special Request)	—	2	2	2
Specific Gravity at 0 °C (32 °F), g/cc	1.94	1.98	2.12	1.99
Food Contact Approval	None	NSF H-1	None	NSF H-1

These values are typical properties and not specifications
*Grease exceeded maximum capacity of machine. Theoretical load wear index based on 10 loads.

For product information, industry applications, technical assistance, or global distributor contacts, visit krytox.com or within the U.S. and Canada, call 1-844-773-CHEM/2436 or outside of the U.S., call 1-302-773-1000.

Replaces: K-20067-3
C-10398 (11/15)

SAFETY DATA SHEET

Krytox™ GPL 206

Version	Revision Date:	SDS Number:	Date of last issue: 22.05.2025
2.2	16.12.2025	1785864-00015	Date of first issue: 23.06.2017

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Krytox™ GPL 206

SDS-Identcode : 130000031500

Manufacturer or supplier's details

Company : Chemours Netherlands B.V.

Address : Baanhoekweg 22
3313 LA Dordrecht Netherlands

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

Emergency telephone number : +44 20 3885 0382 (CHEMTREC - Recommended)

E-mail address : sds-support@chemours.com

Telefax : +31-78-6163737

Recommended use of the chemical and restrictions on use

Recommended use : Lubricant

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.

2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS label elements

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

Other hazards which do not result in classification

The thermal decomposition vapours of fluorinated plastics may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Calcium nitrite	13780-06-8	>= 0.1 - < 0.25

4. FIRST AID MEASURES

General advice : No information available.

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.

Most important symptoms and effects, both acute and delayed : Inhalation may provoke the following symptoms:
Irritation
Lung oedema
Eye contact may provoke the following symptoms
Blurred vision
Discomfort
Lachrymation
Skin contact may provoke the following symptoms:
Irritation
Redness
Inhalation may provoke the following symptoms:
Irritation
Shortness of breath
No information available.

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

Notes to physician : Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Not applicable
Will not burn

Unsuitable extinguishing media : Not applicable
Will not burn

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and 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.

7. HANDLING AND STORAGE

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 as-

sessment
Take care to prevent spills, waste and minimize release to the environment.

Do not breathe decomposition products.

Conditions for safe storage : Keep in properly labelled containers.
Store in accordance with the particular national regulations.

Materials to avoid : No special restrictions on storage with other products.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Hydrofluoric acid	7664-39-3	TWA	0.5 ppm (Fluorine)	ACGIH
		C	2 ppm (Fluorine)	ACGIH
Carbonyl difluoride	353-50-4	TWA	2 ppm	ACGIH
		STEL	5 ppm	ACGIH
Carbon dioxide	124-38-9	TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
Carbon monoxide	630-08-0	TWA	25 ppm	ACGIH

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

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Combined particulates, acidic gas/vapour and organic vapour type

Hand protection

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

Eye protection	:	Wear the following personal protective equipment: Safety glasses
Skin and body protection	:	Skin should be washed after contact.
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Grease
Colour	:	white
Odour	:	odourless
Odour Threshold	:	No data available
pH	:	7
Melting point/freezing point	:	320 °C
Initial boiling point and boiling range	:	No data available
Flash point	:	Method: Pensky-Martens closed cup 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)		
Water solubility	:	insoluble

Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	300 °C
Viscosity		
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle characteristics		
Particle size	:	No data available

10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid	:	None known.
Incompatible materials	:	None.

Hazardous decomposition products

Thermal decomposition	:	Hydrofluoric acid Carbonyl difluoride Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Skin contact Ingestion Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Components:

Calcium nitrite:

Acute oral toxicity : LD50 (Rat): 283 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Components:

Calcium nitrite:

Species : Rabbit
Method : Directive 67/548/EEC, Annex V, B.4.
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Calcium nitrite:

Species : Rabbit
Method : Directive 67/548/EEC, Annex V, B.5.
Result : Irritation to eyes, reversing within 21 days

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Calcium nitrite:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Calcium nitrite:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: positive

Test Type: Chromosome aberration test in vitro
Result: positive
Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
Result: positive
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Intraperitoneal injection
Result: negative
Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Components:

Calcium nitrite:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	2 Years
Result	:	negative
Remarks	:	Based on data from similar materials

Reproductive toxicity

Not classified based on available information.

Components:

Calcium nitrite:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Mouse
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

Calcium nitrite:

Species	:	Rat
NOAEL	:	130 mg/kg

Application Route	:	Ingestion
Exposure time	:	2 yr
Remarks	:	Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Calcium nitrite:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 45 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOEC (Desmodesmus subspicatus (green algae)): > 1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC50: > 100 mg/l Exposure time: 180 min Method: OECD Test Guideline 209 Remarks: Based on data from similar materials
Toxicity to fish (Chronic toxicity)	:	NOEC: > 1 mg/l Exposure time: 30 d Species: Cyprinus carpio (Carp) Method: OECD Test Guideline 210 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: > 1 mg/l Exposure time: 80 d Species: Penaeid Shrimp Remarks: Based on data from similar materials

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not dispose of waste into sewer. Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

Special precautions for user

Not applicable

15. REGULATORY INFORMATION

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

16. OTHER INFORMATION

Other information	:	Krytox™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC. Chemours™ and the Chemours Logo are trademarks of The Chemours Company. Before use read Chemours safety information. For further information contact the local Chemours office or nominated distributors.

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/

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
ACGIH / C	:	Ceiling limit

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; GHS - Globally Harmonised 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 Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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; MERCOSUR - The Agreement for the Facilitation of the Transport of Dangerous Goods; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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.

AE / EN