



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont
Material Safety Data Sheet

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"KRYTOX" GPL-21X Series Fluorinated Grease
3894PP Revised 27-MAY-2005

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"KRYTOX" is a registered trademark of DuPont.

Corporate MSDS Number : DU008188
Grade : 210, 211, 212, 213, 214, 215, 216, 217

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.
302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.
703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S.
302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
PERFLUOROALKYLETHER	60164-51-4	68-77
MOLYBDENUM DISULFIDE	1317-33-5	5
PTFE	9002-84-0	18-27

HAZARDS IDENTIFICATION

Potential Health Effects

Skin contact may cause skin irritation with discomfort or rash. Prolonged skin contact may cause redness and inflammation of the hair follicles without skin sensitization.

Eye contact may cause eye irritation with discomfort, tearing or blurring of vision.

Inhalation of fluorine compounds released as decomposition products above 290 degC (554 degF) may cause lung irritation and pulmonary edema which require medical treatment. Inhalation of fumes or smoke from overheated or burning

(HAZARDS IDENTIFICATION - Continued)

grease may cause polymer fume fever, a temporary flu-like illness accompanied by fever, chills, and sometimes cough, of approximately 24 hours duration. Repeated episodes of polymer fume fever may cause lung damage.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

Flush skin with water after contact. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400 mL water and mix thoroughly. Administer 5 mL/kg, or 350 mL for an average adult.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : Does not ignite
Method : PMCC

Non-combustible.

Extinguishing Media

As appropriate for combustibles in area.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment.

Decomposition at flame temperatures may form toxic fluorine compounds. Avoid breathing decomposition products.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Place in container for disposal. Remove source of heat and flame.

HANDLING AND STORAGE

Handling (Personnel)

Avoid contact with eyes. Avoid contact with skin. Wash thoroughly after handling. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

Storage

Keep container tightly closed. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

Keep away from heat and flame to avoid decomposition products.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Keep container tightly closed.

Keep away from heat and flames.

Personal Protective Equipment

EYE/FACE PROTECTION

Wear safety glasses or coverall chemical splash goggles.

RESPIRATOR

Where the potential exists for exposure to decomposition products due to heating or elevated temperatures, wear NIOSH approved respiratory protection as appropriate.

PROTECTIVE CLOTHING

Where there is potential for skin contact have available and wear as appropriate, impervious gloves, apron, pants, and jacket.

Exposure Guidelines

Applicable Exposure Limits

MOLYBDENUM DISULFIDE

PEL (OSHA)	: 5 mg/m ³ , and soluble compounds, as Mo Insoluble compounds: 15 mg/m ³ , Total Dust as 8 Hr TWAs
TLV (ACGIH)	: 0.5 mg/m ³ (Soluble compounds), as Mo, A ₃ 10 mg/m ³ (Metal and Insoluble Compounds) (Inhalable fraction) 3 mg/m ³ (Respirable fraction)
AEL * (DuPont)	: None Established

PTFE

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 10 mg/m ³ , 8 Hr. TWA, total dust 5 mg/m ³ , 8 Hr. TWA, respirable dust

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Melting Point : 320 C (608 F)
Solubility in Water : Negligible WT%
pH : Neutral
Odor : Odorless
Form : Solid, waxy grease
Color : Black
Specific Gravity : 1.89-1.93 @ 24 deg C (75 deg F)

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Incompatible with strong hydrogen acids. Will react to product hydrogen sulfide.

Polymerization

Polymerization will not occur.

Other Hazards

Decomposition: Heating above 260-290 deg C (500-554 deg F) may form potentially toxic fluorine compounds.
Depolymerization may occur in the presence of some metal oxides at temperatures above 288 deg C (550 deg F).
Decomposition occurs at increasing rates as temperature is raised above 355 deg C (670 deg F).

TOXICOLOGICAL INFORMATION

Animal Data

Perfluoroalkylether:

Inhalation 4 hour ALC: 19.54 mg/l in rats
Skin absorption ALD: >17,000 mg/kg in rats
Oral ALD: >25,000 mg/kg in rats

Molybdenum Disulfide:

Skin Absorption LD50: >16,000 mg/kg in rabbits
Oral LD50: >16,000 mg/kg in rats

The product contains a mild eye irritant. A single inhalation exposure to perfluoroalkylether caused

(TOXICOLOGICAL INFORMATION - Continued)

nonspecific effects such as respiratory irritation. Toxic effects described in animals exposed to decomposition products of perfluoroalkylether formed above 260 degC (500 degF) include lung irritation, irregular respiration, tremors and increased liver weight. Pulmonary edema and death occurred in rats exposed to the decomposition products of perfluoroalkylether formed at around 290 degC (554 degF). Repeated inhalation exposures of molybdenum disulfide produced only an increase in respiration rate in animals. A single ingestion exposure of molybdenum disulfide produced only marked diarrhea in animals.

A single inhalation exposure to PTFE caused irritation of the lungs. A repeated ingestion exposure caused no significant toxicological effects. Long-term ingestion exposure caused altered white blood cell count.

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

TRANSPORTATION INFORMATION

Shipping Information

DOT
Proper Shipping Name : NOT REGULATED

Shipping Containers

2, 8 oz. polyethylene tubes
1 lb. double wall jars (polypropylene inner;
polystyrene outer) 5-15lb. polyethylene pails
50-75lb white high density polyethylene pails

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No

(REGULATORY INFORMATION - Continued)

Reactivity : No
Pressure : No

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating
Health : 1
Flammability : 0
Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : MSDS Coordinator
Address : DuPont Chemicals
Wilmington, DE 19898
Telephone : 800-441-7515

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS