



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-22X and GPL-52X Series Fluorinated Grease  
3829PP Revised 5-MAY-1995  
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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"Krytox" is a registered trademark of DuPont.

Corporate MSDS Number : DU008134  
Grade : 220, 221, 222, 223, 224, 225, 226, 227

Tradenames and Synonyms

"Krytox" GPL 227-500  
"Krytox" HiTemp T8-26  
"Krytox" HiTemp T8-27  
"Krytox" HTC26  
"Krytox" HTC27

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)

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
Perfluoroalkylether	60164-51-4	71-80
*Sodium Nitrite	7632-00-0	2
PTFE	9002-84-0	18-27

\* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

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HAZARDS IDENTIFICATION  
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## Potential Health Effects

Skin contact may cause skin irritation with discomfort or rash. Prolonged skin contact to perfluoroalkylether may cause redness and inflammation of the hair follicles without skin sensitization. Sodium nitrite has been infrequently associated with skin sensitization in humans.

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 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.

Ingestion or inhalation of sodium nitrite may cause low blood pressure with a throbbing headache and fainting; or nonspecific discomfort such as nausea or weakness.

Overexposure to sodium nitrite may cause methemoglobinemia (reduced oxygen carrying capacity of the blood) with headache, weakness, or cyanosis (bluish discoloration of the skin), possibly progressing to dizziness, incoordination, shortness of breath, increased pulse rate and loss of consciousness.

Simultaneous ingestion of nitrites and medications or chemicals containing an amine group may form carcinogenic nitrosamines in the stomach.

## 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.

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FIRST AID MEASURES  
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## 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

## (FIRST AID MEASURES - Continued)

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.

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Flash Point : Does not ignite.  
Method : PMCC

Non-combustible.

## Extinguishing Media

As appropriate for combustibles in area.

## Fire Fighting Instructions

Evacuate personnel to a safe area.

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

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ACCIDENTAL RELEASE MEASURES  
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## 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 - Continued)

## Accidental Release Measures

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

The CERCLA Reportable Quantity (RQ) for Sodium Nitrite is 100 pounds.

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HANDLING AND STORAGE  
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## 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.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## 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.

## RESPIRATORS

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 CONTROLS/PERSONAL PROTECTION - Continued)

## Exposure Guidelines

## Applicable Exposure Limits

## Sodium Nitrite

PEL (OSHA) : None Established  
TLV (ACGIH) : None Established  
AEL \* (DuPont) : 2 mg/m<sup>3</sup>, 8 Hr. TWA, respirable dust  
WEEL (AIHA) : None Established

## PTFE

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

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

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

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STABILITY AND REACTIVITY  
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## Chemical Stability

Stable.

## Incompatibility with Other Materials

None reasonably foreseeable.

## Polymerization

Polymerization will not occur.

## (STABILITY AND REACTIVITY - Continued)

## 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).

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TOXICOLOGICAL INFORMATION  
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## Animal Data

## Perfluoroalkylether:

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

## Sodium Nitrite:

Inhalation 4 hour LC50: 1,450 mg/m3 in rats  
Oral LD50: 120 mg/kg in rats

The product contains mild eye irritants. A single inhalation exposure to perfluoroalkylether caused 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). Other than increased activity of lung enzymes, no toxic effects were observed in animals exposed to sodium nitrite by inhalation. By ingestion, sodium nitrite produced methemoglobinemia, decreased hemoglobin, increased brain dopamine and nonspecific effects such as weight loss and irritation. Long term ingestion of sodium nitrite produced methemoglobinemia and unspecified pathological changes in the liver, spleen, kidney, adrenals, brain, heart and lungs. A similar product is of very low toxicity by ingestion.

Tests in animals indicate that sodium nitrite is not carcinogenic. Tests of sodium nitrite under circumstances in which nitrosamines, a chemical group with some known carcinogens, could have been formed demonstrate carcinogenic activity. Tests of sodium nitrite for mutagenic activity in bacterial or mammalian cell cultures have been inconclusive with positive results in some tests, and negative results in others but produces genetic damage in animals. Tests of sodium nitrite in animals demonstrate no reproductive or developmental activity.

## (TOXICOLOGICAL INFORMATION - Continued)

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.

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ECOLOGICAL INFORMATION  
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## Ecotoxicological Information

Sodium Nitrite is slightly toxic. The 96 hour LC50 in minnows is >100 mg/L.

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DISPOSAL CONSIDERATIONS  
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## 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.

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TRANSPORTATION INFORMATION  
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## Shipping Information

Not Regulated as a hazardous material by DOT, IMO or IATA.

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REGULATORY INFORMATION  
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## U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

## TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes  
Chronic : No  
Fire : No  
Reactivity : No  
Pressure : No

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OTHER INFORMATION  
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## NFPA, NPCA-HMIS

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

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

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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 Chemical Solutions Enterprise  
Wilmington, DE 19898  
Telephone : 800-441-7515

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