

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: March 23, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name DIISOPROPYL FLUOROPHOSPHATE

1.2 Other means of identification

Product number CCNP900172
Other names Neoglaucit; Isofluorophosphate; Difluorophate

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

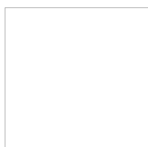
SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 2, Oral
Acute toxicity - Category 2, Dermal
Acute toxicity - Category 2, Inhalation

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H300 Fatal if swallowed
H310 Fatal in contact with skin
H330 Fatal if inhaled

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P316 Get emergency medical help immediately.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P320 Specific treatment is urgent (see ... on this label).

Response

Storage	P405 Store locked up.
	P403+P233 Store in a well-ventilated place. Keep container tightly closed.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
DIISOPROPYL FLUOROPHOSPHATE	Diisopropyl phosphorofluoridate	55-91-4	200-247-6	≈ 99%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

This is an organophosphate pesticide. Extremely toxic: probable oral lethal dose in humans is 5-50 mg/kg, between 7 drops and 1 teaspoonful for 70 kg person (150 lb.). The material is a cholinesterase inactivator. Even traces of the vapor cause pinpoint pupils. (EPA, 1998)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Since thermoregulatory disturbance may itself contribute to the morbidity and mortality in individuals exposed to cholinesterase inhibitors, and since this may be independent of the effect of the toxin on cholinesterase activity, treatment should be instituted to correct hypothermia as well as to combat cholinergic stimulation directly.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fire Fighting: Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode. Parathion

5.2 Specific hazards arising from the chemical

May burn but will not ignite readily. Container may explode in heat of fire. Fire and runoff from fire control water may produce irritating or poisonous gases. Forms hydrogen fluoride in presence of moisture; decomposes in water at pH about 2.5. Keep away from sources of heat. Anhydrous compounds or oil solutions are stable in glass containers at room temperature. (EPA, 1998)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Decontamination may be achieved by using soap washings followed by alcohol-soap washings with tincture of green soap.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Must be stored in its sealed original containers, in well-aired, fresh & dry storehouses or in shaded & possibly well-aired places. It is recommended that the product's temp ... not exceed 25-30 deg c, & keep ... away from sources of heat, free flames or spark-generating equipment. Containers must be stacked in such a way as to permit free circulation of air ... at bottom & inside of piles. Storage areas must be located at suitable distance from inhabited buildings, animal shelters, & food stores; moreover, they must be inaccessible to unauthorized persons, children, & domestic animals. dimethoate

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Isofluorphate is an oily liquid. Clear, colorless or faintly yellow liquid. This material is used as a research tool in neuroscience for its ability to inhibit cholinesterase (by phosphorylation) on an acute/sub-acute basis and to produce a delayed neuropathy. An insecticide. Used in Germany as a basis for "nerve gases". (EPA, 1998)
Colour	Liquid
Odour	Very weak fruity odor
Melting point/freezing point	-82°C(lit.)
Boiling point or initial boiling point and boiling range	62°C9 mm Hg(lit.)
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	64.5°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	no data available
Partition coefficient n-octanol/water	no data available
Vapour pressure	0.58 mm Hg (20 °C)
Density and/or relative density	1.079g/cm3
Relative vapour density	6.4 (Air= 1)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms hydrogen fluoride in presence of moisture; decomposes in water at pH about 2.5.

10.2 Chemical stability

Anhydrous compd or oil solutions are stable in glass containers at room temperatures.

10.3 Possibility of hazardous reactions

Organophosphates, such as ISOFLUORPHATE, are susceptible to formation of highly toxic and flammable phosphine gas in the presence of strong reducing agents such as hydrides. Partial oxidation by oxidizing agents may result in the release of toxic phosphorus oxides. Isofluorophate also reacts with water to generate hydrofluoric acid, which can cause severe chemical burns and is one of the few materials that can etch glass. Fluoride is quite reactive, acting as a weak base and participating in some unique reactions. In particular, fluorides react strongly with compounds containing calcium, magnesium, or silicon ions, which means that solutions containing soluble fluorides are corrosive to both living tissue and glass.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of Fluoride and Phosphorous Oxide

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 5 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

Microbial cell-free extracts were found to contain lysase enzymes capable of hydrolyzing diisopropyl fluorophosphate(1). This indicates that intact microorganisms in the environment may also be capable of biodegrading diisopropyl fluorophosphate. One study reported that *Pseudomonas melophthora* could degrade diisopropyl fluorophosphate in the presence of yeast extract, mannitol, and acetone(2). Diisopropyl fluorophosphate was found to be rapidly degraded (no quantitative rate was given) in ruminal fluid(3), which contains anaerobic microorganisms.

12.3 Bioaccumulative potential

An estimated BCF of 1 was calculated for diisopropyl fluorophosphate (SRC), using an estimated log Kow of 1.13(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low.

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for diisopropyl fluorophosphate can be estimated to be 31 (SRC). According to a classification scheme(2), this estimated Koc value suggests that diisopropyl fluorophosphate is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN3382 (For reference only, please check.) IMDG: UN3382 (For reference only, please check.) IATA: UN3382 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: TOXIC BY INHALATION LIQUID, N.O.S. with an LC50 lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC50 (For reference only, please check.)
IMDG: TOXIC BY INHALATION LIQUID, N.O.S. with an LC50 lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC50 (For reference only, please check.)
IATA: TOXIC BY INHALATION LIQUID, N.O.S. with an LC50 lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC50 (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Diisopropyl phosphorofluoridate	Diisopropyl phosphorofluoridate	55-91-4	200-247-6
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.

Vietnam National Chemical Inventory	Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2024

Revision Date March 23, 2025

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.