

1 Identification of substance**Product details**

Trade name

2,6-Dibromo-4-fluorophenyl isocyanate

Stock number:

L18744

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG
Benzstrasse 3
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com
www.alfa-chemcat.com

Informing department:

Product safety department.

Emergency information:

Giftnotruf Universität Mainz / Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telefon:+49(0)6131/19240**2 Hazards identification**

Hazard designation:



Xn Harmful

Information pertaining to particular dangers for man and environment

R 20/22 Harmful by inhalation and if swallowed.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 42 May cause sensitisation by inhalation.

GHS label elements

**Danger**

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Warning**H302 - Harmful if swallowed.
H332 - Harmful if inhaled.
H335 - May cause respiratory irritation.**Warning**

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

P285 In case of inadequate ventilation wear respiratory protection.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Prevention:

Response:

Storage:

Disposal:

3 Composition/information on ingredients

Chemical characterization:

Designation: (CAS#)

2,6-Dibromo-4-fluorophenyl isocyanate (CAS# 76393-18-5):
100%**4 First aid measures**

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.
Instantly wash with water and soap and rinse thoroughly.

After eye contact

Seek immediate medical advice.
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek immediate medical advice.

5 Fire fighting measures

Suitable extinguishing agents

CO₂, sand, extinguishing powder. Do not use water.

For safety reasons unsuitable extinguishing agents

Water.

Special hazards caused by the material, its products of combustion or flue gases:

Can be released in case of fire:
Carbon monoxide and carbon dioxide
Hydrogen bromide (HBr)
Nitrogen oxides (NO_x)
Hydrogen cyanide (HCN)
Hydrogen fluoride (HF)

Protective equipment:

Wear self-contained breathing apparatus.
Wear full protective suit.**6 Accidental release measures**

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Measures for environmental protection:

Ensure adequate ventilation

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Dispose of contaminated material as waste according to item 13.

Additional information:

Ensure adequate ventilation.

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

7 Handling and storage

Handling

Information for safe handling:

Handle under dry protective gas.
Keep containers tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Storage

Requirements to be met by storerooms and containers:

Refrigerate

Information about storage in one common storage facility:

Store away from oxidizing agents.
Protect from heat.
Store away from water.

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Further information about storage conditions:

Store under dry inert gas.
This product is moisture sensitive.
Keep container tightly sealed.
Protect from humidity and keep away from water.
Refrigerate

8 Exposure controls and personal protection
Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with critical values that require monitoring at the workplace:
Additional information:**

Not required.
No data

**Personal protective equipment
General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.

**Breathing equipment:
Protection of hands:
Material of gloves**

Use breathing protection with high concentrations.
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Penetration time of glove material
Eye protection:**

Impervious gloves
Not determined
Safety glasses
Face protection
Protective work clothing.

Body protection:
9 Physical and chemical properties:
General Information

Form: Solid.
Colour: White
Smell: Irritant

**Change in condition
Melting point/Melting range:
Boiling point/Boiling range:
Sublimation temperature / start:**

42-45°C
Not determined
Not determined

Flash point:

> 110°C

Ignition temperature:

Not determined

Decomposition temperature:

Not determined

Danger of explosion:

Product is not explosive.

Critical values for explosion:

Lower: Not determined
Upper: Not determined

Steam pressure:

Not determined

Density

Not determined

**Solubility in / Miscibility with
Water:**

Hydrolyzes

10 Stability and reactivity
**Thermal decomposition / conditions to be avoided:
Materials to be avoided:**

No decomposition if used and stored according to specifications.
Water/moisture
Alcohols
Amines
Oxidizing agents
Heat

Dangerous reactions:
Dangerous products of decomposition:

Isocyanates may react exothermically with NH, OH or SH groups
Carbon monoxide and carbon dioxide
Hydrogen bromide
Nitrogen oxides (NOx)
Hydrogen fluoride
Hydrogen cyanide (prussic acid)

11 Toxicological information
**Acute toxicity:
Primary irritant effect:
on the skin:
on the eye:**

Irritant for skin and mucous membranes.
Irritant effect.

Sensitization:

Sensitization possible by inhalation.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Sensitisation

May cause sensitisation by inhalation.

12 Ecological information:
**Additional ecological information:
General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations
**Product:
Recommendation**

Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.

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Consult state, local or national regulations for proper disposal.

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**Uncleaned packagings:
Recommendation:**

Disposal must be made according to official regulations.

14 Transport information**Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**

ADR/RID-GGVS/E Class: 6.1 (T2) Toxic substances.
Kemler Number: 60
UN-Number: 2811
Packaging group: III
Label: 6.1
Designation of goods: 2811 TOXIC SOLID, ORGANIC, N.O.S. (2,6-Dibromo-4-fluorophenyl isocyanate)
Limited quantities (LQ): LQ9

Maritime transport IMDG/GGVSea:

IMDG/GGVSea Class: 6.1
UN Number: 2811
Label: 6.1
Packaging group: III
Marine pollutant: No
Correct technical name: TOXIC SOLID, ORGANIC, N.O.S. (2,6-Dibromo-4-fluorophenyl isocyanate)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 6.1
UN/ID Number: 2811
Label: 6.1
Packaging group: III
Correct technical name: TOXIC SOLID, ORGANIC, N.O.S. (2,6-Dibromo-4-fluorophenyl isocyanate)

UN "Model Regulation":

UN2811, TOXIC SOLID, ORGANIC, N.O.S., 6.1, III

15 Regulatory information**Designation according to EC guidelines:****Code letter and hazard designation of product:**

Xn Harmful

Risk phrases:

20/22 Harmful by inhalation and if swallowed.
 36/37/38 Irritating to eyes, respiratory system and skin.
 42 May cause sensitisation by inhalation.

Safety phrases:

22 Do not breathe dust.
 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 36/37 Wear suitable protective clothing and gloves.
 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

National regulations**Information about limitation of use:**

For use only by technically qualified individuals.
 Employment restrictions concerning young persons must be observed.

Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing data specification sheet: Health, Safety and Environmental Department.**Contact:** Zachariah Holt

Abbreviations and acronyms:
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
 ICAO: International Civil Aviation Organization
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 CAS: Chemical Abstracts Service (division of the American Chemical Society)