

Safety Data Sheet
according to 1907/2006/EC, Article 31

Revision: 13.07.2010

Printing date 13.07.2010

1 Identification of substance**Product details**

Trade name

Titanium (IV) fluoride

Stock number:

11540

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:



T+ Very toxic

Information pertaining to particular dangers for man and environment

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
R 34 Causes burns.

GHS label elements

**Danger**H300 - Fatal if swallowed.
H310 - Fatal in contact with skin.
H330 - Fatal if inhaled.**Danger**

Response:

H314 - Causes severe skin burns and eye damage.
 P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P320 Specific treatment is urgent (see on this label).
 P361 Remove/Take off immediately all contaminated clothing.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Storage:

Disposal:

3 Composition/information on ingredients

Chemical characterization:

Designation: (CAS#)

Titanium (IV) fluoride (CAS# 7783-63-3), 100%

Identification number(s):

EINECS Number:

232-017-6

4 First aid measures

General information

Instantly remove any clothing soiled by the product.
Remove breathing apparatus only after soiled clothing has been completely removed.

After inhalation

In case of irregular breathing or respiratory arrest provide artificial respiration.
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

Do not induce vomiting; instantly call for medical help.
Seek immediate medical advice.**5 Fire fighting measures**Suitable extinguishing agents
For safety reasons unsuitable extinguishing agents

Use fire fighting measures that suit the environment.

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

Water.

Protective equipment:

Can be released in case of fire:
Hydrogen fluoride (HF)
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:

Use neutralizing agent.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.

Additional information:

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.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Open and handle container with care.

Information about protection against explosions and fires:

No special measures required.

Storage
Requirements to be met by storerooms and containers:
Information about storage in one common storage facility:

No special requirements.

Further information about storage conditions:

Do not store together with acids.
Store away from water.
Store under dry inert gas.
Protect from humidity and keep away from water.(Contd. on page 2)
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Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Store in a locked cabinet or with access restricted to technical experts or their assistants.

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:

Fluorides (as F)
mg/m³
ACGIH TLV 2.5
Austria MAK 2.5
Belgium TWA 2.5
Finland TWA 2.5
France TWA 2.5
Germany MAK 2.5
Hungary TWA 1; 2-STEL
Netherlands MAC-K 3.5
Norway TWA 0.6
Poland TWA 1; 3-STEL
Sweden NGV 2
Switzerland MAK-W 1.5; 3-KZG-W
United Kingdom TWA 2.5
Russia TWA 2
Denmark TWA 2.5
USA PEL 2.5
No data

Additional information:**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.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Use breathing protection with high concentrations.
Safety glasses
Tightly sealed safety glasses.
Full face protection
Face protection
Protective work clothing.

Breathing equipment:**Eye protection:****Body protection:****9 Physical and chemical properties:****General Information**

Form: Crystalline
Colour: White
Smell: Odourless

Change in condition

Melting point/Melting range: 400°C
Boiling point/Boiling range: Not determined
Sublimation temperature / start: 284°C

Flash point: Not applicable**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 at 20°C** 2.798 g/cm³**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

Materials to be avoided:

Acids
Water/moisture

Dangerous reactions:

Reacts with water

Dangerous products of decomposition:

Hydrogen fluoride

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

Corrosive effect on skin and mucous membranes.
Irritant for skin and mucous membranes.
Strong corrosive effect.
Irritant effect.

on the eye:**Sensitization:****Additional toxicological information:**

No sensitizing effect known.
Danger by skin resorption.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
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.

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

Do not allow product to reach ground water, water bodies or sewage system.
Water hazard class 2 (Self-assessment): hazardous for water.

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Danger to drinking water if even small quantities leak into soil.
Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations**Product:
Recommendation**

Consult state, local or national regulations for proper disposal.
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.

**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: 8 (C2) Corrosive substances.
Kemler Number: 80
UN-Number: 3260
Packaging group: II
Label: 8
Designation of goods: 3260 CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (titanium (IV) fluoride)
Limited quantities (LQ): LQ23
Transport category: 2
Tunnel restriction code: E

Maritime transport IMDG/GGVSea:

IMDG/GGVSea Class: 8
UN Number: 3260
Label: 8
Packaging group: II
Marine pollutant: No
Segregation groups: Acids
Correct technical name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (titanium (IV) fluoride)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 8
UN/ID Number: 3260
Label: 8
Packaging group: II
Correct technical name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (titanium (IV) fluoride)

UN "Model Regulation":

UN3260, CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S., 8, II

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

T+ Very toxic

Risk phrases:

26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
34 Causes burns.

Safety phrases:

9 Keep container in a well-ventilated place.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
28 After contact with skin, wash immediately with plenty of water.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
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 2 (Self-assessment): 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
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)