

## Chemical Safety Data Sheet MSDS / SDS

**VANADIUM TRIFLUORIDE**

Revision Date:2026-05-31 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : VANADIUM TRIFLUORIDE  
CBnumber : CB8314857  
CAS : 10049-12-4  
EINECS Number : 233-169-6  
Synonyms : VF3,vanadium trifluoride

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

**SECTION 2: Hazards identification****GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

No data available

**Precautionary statements**

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

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

Continuerinsing.

P320 Specific treatment is urgent (see ... on this label).

P405 Store locked up.

**Hazard statements**

H300 Fatal if swallowed

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

## SECTION 3: Composition/information on ingredients

### Substance

Product name	: VANADIUM TRIFLUORIDE
Synonyms	: VF3, vanadium trifluoride
CAS	: 10049-12-4
EC number	: 233-169-6
MF	: F3V
MW	: 107.94

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## SECTION 4: First aid measures

### First Aid Measures

#### General advice

Immediate medical attention is required.

#### Eye contact

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Call a physician immediately.

#### Skin Contact

Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

#### Inhalation

Immediate medical attention is required. Remove to fresh air. If not breathing, give artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

#### Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. Drink plenty of water.

#### Self-protection of the first aider

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### Most important symptoms and effects, both acute and delayed

#### Symptoms

No information available.

### Indication of any immediate medical attention and special treatment needed

#### Note to physicians

Treat symptomatically.

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## SECTION 5: Firefighting measures

### Suitable Extinguishing Media

#### Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable Extinguishing Media

None.

### Specific hazards arising from the chemical

#### Specific hazards arising from the chemical

No information available.

#### Hazardous combustion products

Hydrogen fluoride.

### Explosion data

#### Sensitivity to Mechanical Impact

No information available.

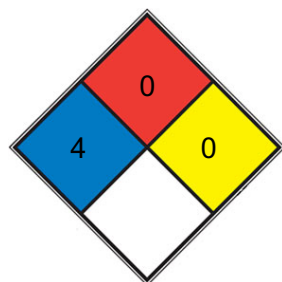
#### Sensitivity to Static Discharge

No information available.

### Protective equipment and precautions for firefighters

Protective equipment and precautions Wear self-contained breathing apparatus and protective suit.  
for firefighters

### NFPA 704



HEALTH 4 Very short exposure could cause death or major residual injury (e.g. hydrogen cyanide, phosgene, methyl isocyanate, [hydrofluoric acid](#))

FIRE 0 Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N2](#))

SPEC.

HAZ.

## SECTION 6: Accidental release measures

## Personal precautions, protective equipment and emergency procedures

### Personal precautions

Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

### Environmental precautions

#### Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

See Section 12 for additional Ecological Information.

### Methods and material for containment and cleaning up

#### Methods for containment

Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading. Dike far ahead of liquid spill for later disposal.

#### Methods for cleaning up

Use personal protective equipment as required. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.

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## SECTION 7: Handling and storage

### Precautions for safe handling

#### Advice on safe handling

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray.

Do not eat, drink or smoke when using this product.

### Conditions for safe storage, including any incompatibilities

#### Storage Conditions

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Store at room temperature.

#### Incompatible materials

None known based on information supplied.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Exposure Guidelines

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#### Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Vanadium(III) fluoride 10049-12-	TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup> F TWA: 2.5 mg/m <sup>3</sup> dust (vacated) TWA: 2.5	Ceiling: 0.05 mg/m <sup>3</sup> V dust and fume 15 min

4	F	mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup> F
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NIOSH IDLH Immediately Dangerous to Life or Health

## Appropriate engineering controls

### Engineering Controls

Showers  
 Eyewash stations  
 Ventilation systems

## Individual protection measures, such as personal protective equipment

### Eye/face protection

Tight sealing safety goggles.

### Skin and Body Protection

Wear protective gloves and protective clothing.

### Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

### General Hygiene Considerations

When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs.

## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical State	Solid
Appearance	No information available
Odor	No information available
pH	No information available
Melting point/freezing point	1406 °C
Boiling point	sublimes at 800 °C [STR93]
Flash point	No information available
Density	3.36 g/cm <sup>3</sup>
Evaporation rate	No information available
Upper flammability limits	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific gravity	No information available
Water solubility	Practically insoluble in water, acetone, and glacial acetic acid
Solubility in other solvents	No information available
Partition coefficient	No information available

Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Solubility	insoluble in H <sub>2</sub> O, ethanol
Colour	yellow-green hexagonal, hexane crystals, crystalline

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## SECTION 10: Stability and reactivity

### Reactivity

Not applicable

### Chemical stability

Stable under recommended storage conditions.

### Possibility of Hazardous Reactions

None under normal processing.

### Hazardous polymerization

No information available.

### Conditions to avoid

Extremes of temperature and direct sunlight.

### Incompatible materials

Strong oxidizing agents.

### Hazardous Decomposition Products

Hydrogen fluoride.

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## SECTION 11: Toxicological information

### Information on likely routes of exposure

#### Inhalation

Classified based on available data. For more details, see section 2.

#### Eye contact

Classified based on available data. For more details, see section 2.

#### Skin Contact

Classified based on available data. For more details, see section 2.

#### Ingestion

Classified based on available data. For more details, see section 2.

## Information on toxicological effects

### Symptoms

Classified based on available data. For more details, see section 2.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Chronic Toxicity

Prolonged or repeated exposure increases the risk. Possible risk of irreversible effects. Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

### Chemical Name ACGIH IARC NTP OSHA

#### Vanadium(III) fluoride - Group

3 - - 10049-12-4

### Numerical measures of toxicity - Product Information

#### Unknown acute toxicity

Classified based on available data. For more details, see section 2

The following values are calculated based on chapter 3.1 of the GHS document

#### ATEmix (oral)

5 mg/kg

#### ATEmix (inhalation-dust/mist)

0 mg/l

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## SECTION 12: Ecological information

### Ecotoxicity

May cause long lasting harmful effects to aquatic life

100% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

### Persistence and degradability

No information available.

### Bioaccumulation

No information available.

### Mobility

No information available.

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## SECTION 13: Disposal considerations

### Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations.

### Contaminated packaging

Do not reuse container.

### **Other Information**

Waste codes should be assigned by the user based on the application for which the product was used.

### **US EPA Waste Number**

D002

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## **SECTION 14: Transport information**

### **DOT**

#### **UN/ID no**

UN2923

#### **Hazard Class**

8

#### **Subsidiary class**

6.1

#### **Packing Group**

II

#### **Proper shipping name**

Corrosive solids, toxic, n.o.s.

#### **Description**

UN2923, Corrosive solids, toxic, n.o.s., 8 (6.1), II

#### **Emergency Response Guide Number**

154

### **IMDG**

#### **UN/ID no**

UN2923

#### **Hazard Class**

8

#### **Subsidiary hazard class**

6.1

#### **Packing Group**

II

#### **Proper shipping name**

Corrosive solid, toxic, n.o.s.

#### **Description**

UN2923, Corrosive solid, toxic, n.o.s., 8 (6.1), II

#### **Special Provisions**

274

#### **EmS-No**

F-A, S-B

## IATA

### UN/ID no

UN2923

### Hazard Class

8

### Subsidiary hazard class

6.1

### Packing Group

II

### Proper shipping name

Corrosive solid, toxic, n.o.s.

### Description

UN2923, Corrosive solid, toxic, n.o.s., 8 (6.1), II

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## SECTION 15: Regulatory information

### International Inventories

All of the components in the product are on the following Inventory lists

Europe (EINECS/ELINCS/NLP) South Korea (KECL):

X - Listed

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

Chemical name	TSCA	DSL	NDSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Vanadium(III) fluoride	-	-	-	X	-	-	-	X	-	-

### US Federal Regulations

#### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

#### SARA 311/312 Hazard Categories

##### Acute health hazard

No

##### Chronic Health Hazard

Yes

##### Fire hazard

No

**Sudden release of pressure hazard**

No

**Reactive hazard**

No

**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

**US State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Vanadium(III) fluoride 10049-12-4	X	Not Listed	Not Listed

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## SECTION 16: Other information

**Abbreviations and acronyms**

CAS: Chemical Abstracts Service

TWA: Time-Weighted Average

STEL: Short-Term Exposure Limit

LD50: Lethal Dose 50%

LC50: Lethal Concentration 50%

EC50: Effective Concentration 50%

PEL: Permissible Exposure Limit

TLV: Threshold Limit Value

IMDG: International Maritime Dangerous Goods Code

IATA: International Air Transport Association

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

DOT: US Department of Transportation

NFPA: National Fire Protection Association

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.