

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

1.1. Product identifier

Product form : Substance
 Name : Vanadium trichloride
 EC no : 231-744-6
 CAS No : 7718-98-1
 Formula : VCl₃

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture : Synthesis intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

MSSA S.A.S.
 111, Rue de la Volta - Pomblière
 73600 SAINT-MARCEL - France
 T +33 (0)4 79 24 70 70 - F +33 (0)4 79 24 70 50
fds-msds@metauxspeciaux.fr

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0844 892 0111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302
 Skin Corr. 1B H314
 STOT SE 3 H335
 Aquatic Chronic 2 H411

Full text of classification categories and H statements : see section 16

Adverse physicochemical, human health and environmental effects : Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. Toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) : Danger

Hazard statements (CLP) : H302 - Harmful if swallowed
 H314 - Causes severe skin burns and eye damage
 H335 - May cause respiratory irritation
 H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (CLP) : P260 - Do not breathe dust
 P280 - Wear protective gloves, protective clothing, eye protection, face protection
 P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
 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. Continue rinsing

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P310 - Immediately call a POISON CENTER or doctor/physician
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/container to an approved waste disposal plant

2.3. Other hazards

Other hazards not contributing to the classification : Dust may form explosive mixture in air.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : Vanadium trichloride
CAS No : 7718-98-1
EC no : 231-744-6

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

First-aid measures after inhalation : Move the affected person away from the contaminated area and into the fresh air. Keep victim warm and rested. If breathing is difficult, give oxygen. Call a doctor.

First-aid measures after skin contact : Immediately remove contaminated clothing or footwear. Rinse immediately with plenty of water. Be careful, the product may remain trapped under clothing, footwear or a wrist-watch. If skin burns appear, call a doctor immediately.

First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms.

First-aid measures after ingestion : Do not induce vomiting. Give nothing to eat or drink. Rinse mouth out with water. Give activated charcoal. Call a physician immediately. If possible show him this sheet. Failing this, show him the packaging or label. On ingestion in large quantities : Transfer to hospital rapidly.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Irritation to respiratory tract.

Symptoms/injuries after skin contact : Burns. Ulcerations. Bleeding. Bloody scabs.

Symptoms/injuries after eye contact : Burns. Serious damage to eyes.

Symptoms/injuries after ingestion : Corrosion or irritation of the linings of the mouth, throat, and gastrointestinal tract.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO₂). Powder.

Unsuitable extinguishing media : Water.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : hydrogenchloride. Divanadium pentaoxide.

5.3. Advice for firefighters

Firefighting instructions : Contain the extinguishing fluids by bunding.

Protection during firefighting : Do not attempt to take action without suitable protective equipment : Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid contact with skin and eyes. Do not breathe vapours. In case of important spillage : Only qualified personnel equipped with suitable protective equipment may intervene.

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6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Contain the spilled material by bunding (product is hazardous for the environment). Do not discharge into drains or rivers. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Recover mechanically the product. Avoid raising powdered materials into airborne dust.
Methods for cleaning up : Wash contaminated area with large amounts of water. Clean preferably with a detergent - Avoid the use of solvents. Dispose of contaminated materials in accordance with current regulations.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid any direct contact with the product. Do not breathe dust. Avoid contact of substance with water. Never open the packages under pressure. Access forbidden to unauthorised personnel. Smoking is forbidden.
Hygiene measures : Do not drink, eat or smoke in the workplace. Always wash hands after handling the product. If on skin, take off contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in dry, well-ventilated area. Keep container tightly closed. Keep away from food, drink and animal feeding stuffs.
Incompatible materials : Water.
Special rules on packaging : Store always product in container of same material as original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station. Extraction to remove vapours at their source. Safety shower. Eye fountain.
Personal protective equipment : Safety glasses. Gloves. Protective clothing. Gas mask with filter type E.
Hand protection : Chemical resistant gloves (according to European standard NF EN 374 or equivalent). Breakthrough time : refer to the recommendations of the supplier
Eye protection : Safety glasses with side shields conformes à a norme NF EN166. In case of increased risk : Face shield
Skin and body protection : Chemically protective clothing (type 5) according to standard NF EN3982-1. Boots
Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment : Filtering Half-face mask (DIN EN 149). Breathing apparatus with filter : FFP1 / FFP3. Breathing apparatus with filter : E3 (NF EN14387)



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Appearance : Powder.
Molecular mass : 157.3 g/mol
Colour : Violet.
Odour : Pungent.
Odour threshold : No data available

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pH	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: 250 - 400 °C
Flammability (solid, gas)	: The product is not flammable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: > 1
Solubility	: Water: Soluble
Log Pow	: Not applicable (inorganic substance)
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Not explosive.
Oxidising properties	: Non oxidizing material according to EC criteria.
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

To our knowledge, the product does not present any particular risk, under normal conditions of use.

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Moisture. Air contact.

10.5. Incompatible materials

Water. Strong oxidizing agents.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed.

Vanadium trichloride (7718-98-1)	
LD50 oral rat	350 mg/kg

Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: Not applicable
Serious eye damage/irritation	: Serious eye damage/eye irritation, Category 1 pH: Not applicable
Respiratory or skin sensitisation	: Not classified (Lack of data)
Germ cell mutagenicity	: Not classified (Lack of data)
Carcinogenicity	: Not classified (Lack of data)
Reproductive toxicity	: Not classified (Lack of data)
Specific target organ toxicity (single exposure)	: May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)	: Not classified (Lack of data)
Aspiration hazard	: Not classified (Technical impossibility to obtain the data)

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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

Vanadium trichloride (7718-98-1)

Biodegradation	Not applicable (inorganic substance)
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12.3. Bioaccumulative potential

Vanadium trichloride (7718-98-1)

Log Pow	Not applicable (inorganic substance)
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Vanadium trichloride (7718-98-1)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of in accordance with relevant local regulations. Destroy at an authorised site.

Additional information : Empty the packaging completely prior to disposal. The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR)	: 2475
UN-No. (IMDG)	: 2475
UN-No. (IATA)	: 2475
UN-No. (ADN)	: 2475
UN-No. (RID)	: 2475

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: VANADIUM TRICHLORIDE
Proper Shipping Name (IMDG)	: VANADIUM TRICHLORIDE
Proper Shipping Name (IATA)	: Vanadium trichloride
Proper Shipping Name (ADN)	: VANADIUM TRICHLORIDE
Proper Shipping Name (RID)	: VANADIUM TRICHLORIDE
Transport document description (ADR)	: UN 2475 VANADIUM TRICHLORIDE, 8, III, (E), ENVIRONMENTALLY HAZARDOUS
Transport document description (IMDG)	: UN 2475 VANADIUM TRICHLORIDE, 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 8
Hazard labels (ADR)	: 8



IMDG

Transport hazard class(es) (IMDG)	: 8
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Danger labels (IMDG) : 8



IATA

Transport hazard class(es) (IATA) : 8

Hazard labels (IATA) : 8



ADN

Transport hazard class(es) (ADN) : 8

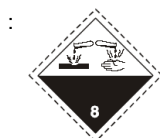
Danger labels (ADN) : 8



RID

Transport hazard class(es) (RID) : 8

Danger labels (RID) : 8



14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information :



Dangerous for the environment

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : C2

Limited quantities (ADR) : 5kg

Excepted quantities (ADR) : E1

Packing instructions (ADR) : P002, IBC08, LP02, R001

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Special packing provisions (ADR)	: B3
Mixed packing provisions (ADR)	: MP10
Portable tank and bulk container instructions (ADR)	: T1
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Bulk (ADR)	: VC1, VC2, AP7
Hazard identification number (Kemler No.)	: 80
Orange plates	:



Tunnel restriction code (ADR)	: E
EAC code	: 2X

- Transport by sea

Limited quantities (IMDG)	: 5 kg
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P002, LP02
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: T1
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: A
MFAG-No	: 157

- Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y845
PCA limited quantity max net quantity (IATA)	: 5kg
PCA packing instructions (IATA)	: 860
PCA max net quantity (IATA)	: 25kg
CAO packing instructions (IATA)	: 864
CAO max net quantity (IATA)	: 100kg
ERG code (IATA)	: 8W

- Inland waterway transport

Classification code (ADN)	: C2
Limited quantities (ADN)	: 5 kg
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0
Carriage prohibited (ADN)	: No
Not subject to ADN	: No

- Rail transport

Classification code (RID)	: C2
Limited quantities (RID)	: 5kg
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P002, IBC08, LP02, R001
Special packing provisions (RID)	: B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1
Portable tank and bulk container special provisions (RID)	: TP33

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Tank codes for RID tanks (RID)	: SGAV
Transport category (RID)	: 3
Special provisions for carriage – Bulk (RID)	: VW9
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 80
Carriage prohibited (RID)	: No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Vanadium trichloride is not on the REACH Candidate List

Vanadium trichloride is not on the REACH Annex XIV List

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:

This sheet was updated (refer to the date at the top of this page). This sheet has been revised completely (changes were not marked).

Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	Regulations concerning the International Carriage of Dangerous Goods by Rai
IMDG	International Maritime Dangerous Goods
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
WGK	Wassergefährdungsklasse (Water Hazard Class).

Other information : Safety data sheet established by : LISAM SERVICES - TELEGIS
17, Rue de la Couture F-60400 PASSEL
Safety Made Easy with www.lisam.com.

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H411	Toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product