

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

1.1. Product identifier

Product form : Substance
Name : Vanadium tetrachloride
EC-No. : 231-561-1
CAS-No. : 7632-51-1
REACH registration No : 01-2120764004-63-0000
Formula : VCl₄

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	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital, Guy's & St Thomas' Hospital Trust	Dudley Road B18 7QH Birmingham	0844 892 0111 (UK only, Monday to Friday, 08.00 to 18.00 hours)	-

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin Corr. 1A H314
Aquatic Chronic 3 H412

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

Causes severe skin burns and eye damage. Harmful to aquatic life with long lasting effects. Contact with water liberates toxic gas. Reacts violently with water. Corrosive to the respiratory tract.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H314 - Causes severe skin burns and eye damage.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements (CLP) :

P223 - Do not allow contact with water.
P260 - Do not breathe vapours, mist.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P301+P330+P331+P310 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER, a doctor.
P303+P361+P353+P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.. Immediately call a POISON CENTER, a doctor.
P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor, a POISON CENTER.
P501 - Dispose of contents and container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

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EUH-statements : EUH014 - Reacts violently with water.
EUH029 - Contact with water liberates toxic gas.
EUH071 - Corrosive to the respiratory tract.

2.3. Other hazards

Other hazards not contributing to the classification : Contact with water liberates toxic gas. Reacts violently with water. Corrosive to the respiratory tract.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Vanadium tetrachloride	(CAS-No.) 7632-51-1 (EC-No.) 231-561-1 (REACH-no) 01-2120764004-63-0000	>= 99.8	Skin Corr. 1A, H314 Aquatic Chronic 3, H412

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

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. Immediately call a POISON CENTER/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... Immediately call a POISON CENTER/doctor. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. 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.

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

Symptoms/effects after inhalation : Corrosive to the respiratory tract.

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

Symptoms/effects after eye contact : Burns. Causes serious eye damage.

Symptoms/effects 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 : Toxic fumes may be released. hydrogenchloride. Chlorine. Vanadium oxides.

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. Avoid breathing vapours. In case of important spillage : Only qualified personnel equipped with suitable protective equipment may intervene.

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".

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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 : Liquid spill: take up in sand, earth, vermiculite.
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

Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Vapour extraction at source. Avoid any direct contact with the product. Do not breathe vapours. Avoid contact of substance with water. Never open the packages under pressure. Access forbidden to unauthorised personnel. Smoking is forbidden. Closed system, if it is technically possible.
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. Alkali metals. Strong oxidizing agents.
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

Vanadium tetrachloride (7632-51-1)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	15 mg/m ³ (Respiratory tract)
Long-term - local effects, inhalation	8 mg/m ³ (Respiratory tract)
PNEC (Water)	
PNEC aqua (freshwater)	0.008 mg/l
PNEC aqua (marine water)	0.8 µg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	7.5 mg/kg dwt
PNEC sediment (marine water)	0.75 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.032 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	1.4 mg/l

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.

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

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Skin and body protection:

If there is a risk of liquid being splashed : Chemically impervious to liquids protective clothing (type 3) according to standard NF EN14605. If there is a risk of splashes : Chemically protective clothing (type 6) according to standard NF EN13034. Boots

Respiratory protection:

Breathing apparatus with filter : ABE (NF EN14387)

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Fluid.
Molecular mass	: 192.75 g/mol
Colour	: brown -. Red.
Odour	: chlorine.
Odour threshold	: No data available
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 150 °C
Flash point	: Not applicable (inorganic substance)
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
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

Reacts violently with water.

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

Reacts violently with water. Exothermic reaction with water.

10.4. Conditions to avoid

Moisture. Air contact.

10.5. Incompatible materials

Water. Alkali metals. Strong oxidizing agents.

10.6. Hazardous decomposition products

Contact with water liberates toxic gas.

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
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 (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: Corrosive to the respiratory tract.
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Harmful to aquatic life with long lasting effects.
Acute aquatic toxicity	: Not classified (Based on available data, the classification criteria are not met)
Chronic aquatic toxicity	: Harmful to aquatic life with long lasting effects.

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LC50 fish	4 mg/l/96h (Danio rerio) (Test method EU C.1)
EC50 Daphnia	3.5 mg/l/48 h (Daphnia magna) (Test method EU C.2)
ErC50 (algae)	17 mg/l/72 h (Pseudokirchneriella subcapitata)(OECD 201 method)
NOEC chronic algae	6.8 mg/l/72 h (Pseudokirchneriella subcapitata)(OECD 201 method)
(Information related to	vanadium element)

12.2. Persistence and degradability

Vanadium tetrachloride (7632-51-1)

Persistence and degradability	Hydrolysis : Instantaneous decomposition in the presence of moisture in the air.
Biodegradation	Not applicable (inorganic substance)

12.3. Bioaccumulative potential

Vanadium tetrachloride (7632-51-1)

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

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

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

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ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 2444	UN 2444	UN 2444	UN 2444	UN 2444
14.2. UN proper shipping name				
VANADIUM TETRACHLORIDE	VANADIUM TETRACHLORIDE	Vanadium tetrachloride	VANADIUM TETRACHLORIDE	VANADIUM TETRACHLORIDE
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
I	I	I	I	I
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No

14.6. Special precautions for user

Overland transport

Classification code (ADR) : C1
Limited quantities (ADR) : 0
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P802
Mixed packing provisions (ADR) : MP8, MP17
Portable tank and bulk container instructions (ADR) : T10
Portable tank and bulk container special provisions (ADR) : TP2
Tank code (ADR) : L10BH
Vehicle for tank carriage : AT
Transport category (ADR) : 1
Special provisions for carriage - Operation (ADR) : S20
Hazard identification number (Kemler No.) : X88
Orange plates :



Tunnel restriction code (ADR) : E
EAC code : 4WE
APP code : B

Transport by sea

Packing instructions (IMDG) : P802
Tank instructions (IMDG) : T10
Tank special provisions (IMDG) : TP2
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Stowage category (IMDG) : C
Stowage and handling (IMDG) : SW2
MFAG-No : 137

Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden

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PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: 854
CAO max net quantity (IATA)	: 2.5L
Special provisions (IATA)	: A1
ERG code (IATA)	: 8W

Inland waterway transport

Classification code (ADN)	: C1
Limited quantities (ADN)	: 0
Excepted quantities (ADN)	: E0
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: C1
Limited quantities (RID)	: 0
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P802
Mixed packing provisions (RID)	: MP8, MP17
Portable tank and bulk container instructions (RID)	: T10
Portable tank and bulk container special provisions (RID)	: TP2
Tank codes for RID tanks (RID)	: L10BH
Special provisions for RID tanks (RID)	: TU38, TE22
Transport category (RID)	: 1
Hazard identification number (RID)	: X88

14.7. Transport in bulk according to Annex II of Marpol 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 tetrachloride is not on the REACH Candidate List

Vanadium tetrachloride is not on the REACH Annex XIV List

Vanadium tetrachloride is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Vanadium tetrachloride is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Not subject to reporting requirements of the United States SARA Section 313

Listed on the Canadian NDSL (Non-Domestic Substances List)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:

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 Rail
IMDG	International Maritime Dangerous Goods
IATA	International Air Transport Association

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WGK	Wassergefährdungsklasse (Water Hazard Class).
Other information	: Safety data sheet established by : LISAM TELEGIS 17 rue de la Couture F-60400 Passel www.lisam-telegis.com.

Full text of H- and EUH-statements:	
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
H314	Causes severe skin burns and eye damage.
H412	Harmful to aquatic life with long lasting effects.
EUH014	Reacts violently with water.
EUH029	Contact with water liberates toxic gas.
EUH071	Corrosive to the respiratory tract.

SDS EU (REACH Annex II)

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.