

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 4/12/2011 Revision date: 1/18/2019 Supersedes: 7/14/2016 Version: 2.1

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

1.1. Product identifier

Product form	: Mixture
Product name	: TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE
CAS-No.	: 7550-45-0
Product code	: 90026641
Formula	: Cl ₄ Ti
Synonyms	: SP00387

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

1.2.1. Relevant identified uses

Industrial/Professional use spec	: For professional use only Industrial Laboratory chemicals
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1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Scaffell Organics
Molekula Ltd
Lingfield Way
Darlington - England
T +44 (0) 1949 823777 / +44 (0) 7590 545705
info@molekula.com / kbowen@molekula.com - www.molekula.com

1.4. Emergency telephone number

Emergency number : +44 (0) 7590 545705

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 1C	H314
Carcinogenicity, Category 2	H351
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP)



GHS05

GHS08

Signal word (CLP)	: Danger
Hazardous ingredients	: DICHLOROMETHANE
Hazard statements (CLP)	: H314 - Causes severe skin burns and eye damage. H351 - Suspected of causing cancer.
Precautionary statements (CLP)	: P231+P232 - Handle and store contents under inert gas. Protect from moisture. P260 - Do not breathe dust/fume/gas/mist/vapours/spray. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P304+P340 - IF INHALED: Remove person to fresh air and keep 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. P308+P313 - IF exposed or concerned: Get medical advice/attention.
EUH-statements	: EUH014 - Reacts violently with water.

2.3. Other hazards

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

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
DICHLOROMETHANE	(CAS-No.) 75-09-2 (EC-No.) 200-838-9 (EC Index-No.) 602-004-00-3	80 - 90	Carc. 2, H351
Titanium Tetrachloride	(CAS-No.) 7550-45-0 (EC-No.) 231-441-9 (EC Index-No.) 022-001-00-5	10 - 20	Skin Corr. 1B, H314

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If possible show this sheet, if not available show packaging or label. Do not leave affected person unattended. Never give anything by mouth to an unconscious person.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Give oxygen or artificial respiration if necessary. Get immediate medical advice/attention.
First-aid measures after skin contact	: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Do not remove clothing if it sticks to the skin. Seek medical attention if burns develop.
First-aid measures after eye contact	: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses, if present and easy to do. Continue rinsing.
First-aid measures after ingestion	: Rinse mouth out with water. Get immediate medical advice/attention. Do not induce vomiting. Do not give an unconscious person anything to drink.

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

Symptoms/effects	: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	: Inhalation may cause irritation (cough, short breathing, difficulty in breathing).
Symptoms/effects after skin contact	: May produce skin irritation, blistering, ulcers, and deep scarring. Causes severe burns.
Symptoms/effects after eye contact	: Causes eye irritation. redness, itching, tears. Direct contact may result in corneal injury.
Symptoms/effects after ingestion	: Symptoms of ingestion include drowsiness, weakness, headache, dizziness, nausea, vomiting. Burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.
Chronic symptoms	: May cause cancer.

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

Get immediate medical advice/attention.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream. Do not use extinguishing media containing water.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire	: Toxic fumes.
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5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: seal off low-lying areas. Keep container tightly closed and away from heat, sparks and flame. Keep away from combustible materials.
Firefighting instructions	: Eliminate all ignition sources if safe to do so. Evacuate area. Warn all persons of corrosive and toxic hazard. Keep upwind.
Protection during firefighting	: Use self-contained breathing apparatus and chemically protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Do not handle until all safety precautions have been read and understood. Ventilate the area thoroughly, especially low lying areas (basements, workpits etc). Proper grounding procedures to avoid static electricity should be followed.
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6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
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TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Emergency procedures	: Do not touch or walk on the spilled product. Evacuate area. Mark out the contaminated area with signs and prevent access to unauthorized personnel. Do not breathe vapours. Do not get in eyes, on skin, or on clothing. Turn leaking containers leak-side up to prevent the escape of liquid.
Measures in case of dust release	: Shelter from vapours by keeping upwind. Special attention should be given to low areas/pits where flammable vapours can accumulate.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. Use self-contained breathing apparatus and chemically protective clothing.
Emergency procedures	: Cover spill with non combustible material, e.g.: sand/earth. Stop leak if safe to do so.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Do not allow water (or moist air) contact with this material.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information	: Do not flush with water.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Handle under inert gas. Do not allow contact with water.
Precautions for safe handling	: Avoid contact with skin, eyes and clothing. Avoid formation of vapours. Do not handle until all safety precautions have been read and understood. Ensure that there is a suitable ventilation system. Do not handle in a confined space.
Hygiene measures	: Take off immediately all contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Handle and store contents under inert gas. Protect from moisture.
Storage conditions	: Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat sources. Keep container closed when not in use.
Incompatible products	: Strong oxidisers. Water.
Incompatible materials	: Sources of ignition. Direct sunlight.
Storage area	: Store in dry protected location to prevent any moisture contact. Store at ambient temperature.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DICHLOROMETHANE (75-09-2)		
EU	IOELV TWA (mg/m ³)	≈ 350 mg/m ³ UK
EU	IOELV STEL (mg/m ³)	≈ 1060 mg/m ³ UK
United Kingdom	Local name	Dichloromethane
United Kingdom	WEL TWA (mg/m ³)	353 mg/m ³
United Kingdom	WEL STEL (mg/m ³)	706 mg/m ³
United Kingdom	Remark (WEL)	BMGV (Biological monitoring guidance values are listed in Table 2), Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
United Kingdom	Regulatory reference	EH40. HSE

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station. Floors should be impervious, resistant to liquids and easy to clean. Handle in accordance with good industrial hygiene and safety procedures.

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Personal protective equipment:

Avoid contact with skin and eyes. Avoid inhalation of vapours. Wear recommended personal protective equipment.

Materials for protective clothing:

Use chemically protective clothing

Hand protection:

Always wash hands after handling the product. The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
	Fluoroelastomer (FKM)	6 (> 480 minutes)	0.7		EN 374

Eye protection:

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Use eye protection according to EN 166, designed to protect against liquid splashes.

Type	Use	Characteristics	Standard
Face shield, Safety goggles	Droplet, vapours	tightly fitting safety goggles, With side shields	EN 166

Skin and body protection:

Keep suitable chemically resistant protective clothing readily available for emergency use. Emergency safety showers should be available in the immediate vicinity of any potential exposure

Type	Standard
Total impervious protective suits, gloves, and boots must be worn to prevent any contact with the product	EN 14605

Respiratory protection:

Keep self contained breathing apparatus readily available for emergency use. Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

Device	Filter type	Condition	Standard
Respiratory protective device with a particle filter	ABEK	Vapour protection, Protection for Liquid particles	EN 14387

Environmental exposure controls:

Avoid formation of vapours. Prevent entry to sewers and public waters.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Molecular mass	: 189.71 g/mol
Colour	: Yellow-brown.
Odour	: Characteristic odour.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1.365 g/cm3

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Solubility	: No data available
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

Stable under normal conditions of use. Reacts violently with water.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not allow contact with water. Protect from moisture. Water, humidity.

10.5. Incompatible materials

Strong oxidizers. water.

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 (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

DICHLOROMETHANE (75-09-2)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	60.14 mg/l/4h

Titanium Tetrachloride (7550-45-0)	
LC50 inhalation rat (mg/l)	1.3 mg/m ³ 1 hour
LC50 inhalation rat (Vapours - mg/l/4h)	460 mg/l/4h

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Serious eye damage, category 1, implicit
Respiratory or skin sensitisation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Carcinogenicity	: Suspected of causing cancer.
Reproductive toxicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-single exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-repeated exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

DICHLOROMETHANE (75-09-2)	
LC50 fish 1	193 mg/l 96h
LC50 fish 2	97 mg/l 48h
EC50 other aquatic organisms 1	2.59 g/l 40min
NOEC chronic fish	83-321 - 28days

Titanium Tetrachloride (7550-45-0)	
EC50 other aquatic organisms 1	1 g/l 48h

12.2. Persistence and degradability

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE (7550-45-0)	
Persistence and degradability	No data available.

DICHLOROMETHANE (75-09-2)	
Persistence and degradability	No data available.

Titanium Tetrachloride (7550-45-0)	
Persistence and degradability	No data available.
Chemical oxygen demand (COD)	<

12.3. Bioaccumulative potential

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE (7550-45-0)	
Bioaccumulative potential	No data available.

DICHLOROMETHANE (75-09-2)	
Log Pow	1.25
Bioaccumulative potential	No bioaccumulation data available.

Titanium Tetrachloride (7550-45-0)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE (7550-45-0)	
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

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Additional information	: Do not allow water (or moist air) contact with this material.
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

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

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

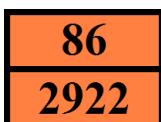
Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
2922	2922	2922	2922	2922
14.2. UN proper shipping name				
CORROSIVE LIQUID, TOXIC, N.O.S.	CORROSIVE LIQUID, TOXIC, N.O.S.	Corrosive liquid, toxic, n.o.s.	CORROSIVE LIQUID, TOXIC, N.O.S.	CORROSIVE LIQUID, TOXIC, N.O.S.
Transport document description				
UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (Titanium(IV) chloride, 1M in dichloromethane), 8 (6.1), III, (E)	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (Titanium(IV) chloride, 1M in dichloromethane), 8 (6.1), III	UN 2922 Corrosive liquid, toxic, n.o.s. (Titanium(IV) chloride, 1M in dichloromethane), 8 (6.1), III	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (Titanium(IV) chloride, 1M in dichloromethane), 8 (6.1), III	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (Titanium(IV) chloride, 1M in dichloromethane), 8 (6.1), III
14.3. Transport hazard class(es)				
8 (6.1)	8 (6.1)	8 (6.1)	8 (6.1)	8 (6.1)
14.4. Packing group				
III	III	III	III	III
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
No supplementary information available				
14.6. Special precautions for user				

Overland transport

Classification code (ADR)	: CT1
Special provisions (ADR)	: 274
Limited quantities (ADR)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T7
Portable tank and bulk container special provisions (ADR)	: TP1, TP28
Tank code (ADR)	: L4BN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13, CV28
Hazard identification number (Kemler No.)	: 86
Orange plates	:



Tunnel restriction code (ADR)	: E
EAC code	: 2X
APP code	: B
Transport by sea	
Special provisions (IMDG)	: 223, 274
Packing instructions (IMDG)	: P001

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1, TP28
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes. Toxic if swallowed, by skin contact or by inhalation.

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y841
PCA limited quantity max net quantity (IATA)	: 1L
PCA packing instructions (IATA)	: 852
PCA max net quantity (IATA)	: 5L
CAO packing instructions (IATA)	: 856
CAO max net quantity (IATA)	: 60L
Special provisions (IATA)	: A3, A803
ERG code (IATA)	: 8P

Inland waterway transport

Classification code (ADN)	: CT1
Special provisions (ADN)	: 274, 802
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EP, TOX, A
Ventilation (ADN)	: VE02
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: CT1
Special provisions (RID)	: 274
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, R001
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T7
Portable tank and bulk container special provisions (RID)	: TP1, TP28
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW28
Colis express (express parcels) (RID)	: CE8
Hazard identification number (RID)	: 86

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

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances
Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

No additional information available

TITANIUM (IV) CHLORIDE, 1M IN DICHLOROMETHANE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-statements:

Carc. 2	Carcinogenicity, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
H314	Causes severe skin burns and eye damage.
H351	Suspected of causing cancer.
EUH014	Reacts violently with water.

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