

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

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

1.1. Product identifier

Trade name

Titanium (III) chloride 20% in 4M hydrochloric acid

CAS number

7705-07-9

EC number

231-728-9

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

Relevant identified uses

Research and development. Laboratory Chemicals. Manufacture of substances.

Not suitable for use in

Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,
DL1 4XX Darlington
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

Contact person

Kevin Banks

Email

+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Corrosive to metals, hazard category 1

Skin corrosion, hazard category 1B

Specific Target Organ Toxicity — Single exposure, hazard category 3

Hazard statements

H290, H314, H335

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.

P234 Keep only in original packaging.

P260 Do not breathe dust/fumes/gas/mist/vapours/spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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

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.

P310 Immediately call a POISON CENTER/doctor.

P321 Specific treatment (see on this label).

P362 + P364 Take off contaminated clothing and wash it before reuse.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container to local regulations.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrases M factor acute M factor chronic	Note
Distilled water	- - - -	59 - 71%	-	- - -	-
Titanium (III) chloride	7705-07-9 231-728-9 - -	15 - 25%	Pyr. Sol. 1, Skin Corr. 1B	H250, H314 - -	-
Hydrochloric acid	7647-01-0 231-595-7 - -	14 - 16%	Met. Corr. 1, Skin Corr. 1B, Eye Dam. 1, STOT SE 3	H290, H314, H318, H335 - -	-

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2
 Issued: 2024-02-27
 Replaces SDS: 2022-04-19

Molecular weight

154.26

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

IF exposed or concerned: Get medical advice/attention. First aiders/ medical personnel need to protect themselves. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. If breathing stops, provide artificial respiration. For breathing difficulties oxygen may be necessary.

Skin contact

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/doctor.

Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

Ingestion

IF SWALLOWED: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only if the persons are fully conscious and awake). Administer activated charcoal (20 - 40g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

Information for doctors

No data available.

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

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. Causes burns by all exposure routes.

See section 11 for more detailed information on health effects and symptoms.

Inhalation

Single exposure may cause the following adverse effects: Causes severe burns. Difficulty in breathing. Unconsciousness, possibly death.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2
 Issued: 2024-02-27
 Replaces SDS: 2022-04-19

Skin contact

Single exposure may cause the following adverse effects: Causes severe burns. Blistering may occur. May be absorbed in the body and cause dizziness, nausea and vomiting. Unconsciousness, death.

Eye contact

Single exposure may cause the following adverse effects: Causes serious eye damage. Unconsciousness, possibly death.

Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. May cause severe internal injury. Unconsciousness, possibly death.

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

Treat symptomatically. Immediately call a POISON CENTER/doctor.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards: Corrosive.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Ambient fire may liberate hazardous vapours.

Water used for fire extinguishing, which has been in contact with the product, may be corrosive.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Prevent skin contact by maintaining a safe distance and by wearing suitable protective equipment/ clothing. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/spray. Avoid contact with skin and eyes. For personal protection, see section 8.

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2
 Issued: 2024-02-27
 Replaces SDS: 2022-04-19

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Collect with absorbent, non-combustible material into suitable containers.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Work under hood. Take action to prevent static discharges. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

Handle and store contents under inert gas.

General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Wash contaminated skin thoroughly after handling. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry place. Store in a closed container.

Store at ambient temperature.

Air sensitive.

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

No occupational exposure limit assigned.

8.2. Exposure controls

Personal Protective Equipment Symbols



Eye / face protection

Wear eye protection.

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2
 Issued: 2024-02-27
 Replaces SDS: 2022-04-19

Hand protection

Wear protective gloves.

Recommended gloves: Nitrile.

Glove Thickness: 0.11mm

Breakthrough time: 8 hours

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

Wash contaminated skin thoroughly after handling.

Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

Environmental exposure controls

Avoid discharge into drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

Colour

Yellow to dark purple

Odour

No data available

Melting point / freezing point

No data available

Boiling point or initial boiling point and boiling range

No data available

Flammability

No data available

Lower and upper explosion limit

No data available

Flash point

No data available

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

Auto-ignition temperature

No data available

Decomposition temperature

No data available

pH

No data available

Kinematic viscosity

No data available

Solubility

No data available

Partition coefficient n-octanol/water

No data available

Vapour pressure

No data available

Density and/or relative density

1.256 g/cm³

Relative vapour density

No data available

Particle characteristics

No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

May be corrosive to metals.

10.2. Chemical stability

Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Air.

strong heating

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid

Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19



10.5. Incompatible materials

Strong oxidising agents.

10.6. Hazardous decomposition products

See section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Species
Hydrochloric acid 7647-01-0 / 231-595-7	CAUSES BURNS.	-
Hydrochloric acid 7647-01-0 / 231-595-7	Corrosive.	reconstructed human epidermis (RhE)

Serious eye damage/irritation

Product / Substance name CAS / EC no.	Result	Species
Hydrochloric acid 7647-01-0 / 231-595-7	Causes serious eye damage.	-
Hydrochloric acid 7647-01-0 / 231-595-7	Risk of: Blindness.	-
Hydrochloric acid 7647-01-0 / 231-595-7	Corrosive.	Bovine cornea

Respiratory or skin sensitisation

Product / Substance name CAS / EC no.	Result	Species	Method / Guideline
Hydrochloric acid 7647-01-0 / 231-595-7	Negative.	Guinea Pig	Guinea pig maximization test (GPMT):

Germ cell mutagenicity

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

Product / Substance name CAS / EC no.	Result	Metabolic activation / Exposure	Species	Method / Guideline
Titanium (III) chloride 7705-07-9 / 231-728-9	Negative.	-	Bacillus subtilis	mitotic recombination assay
Titanium (III) chloride 7705-07-9 / 231-728-9	Negative.	-	mammalian cells	sister chromatid exchange assay
Titanium (III) chloride 7705-07-9 / 231-728-9	Negative.	with and without metabolic activation	Escherichia coli	Ames test
Titanium (III) chloride 7705-07-9 / 231-728-9	Negative.	with and without metabolic activation	Salmonella typhimurium	Ames test
Hydrochloric acid 7647-01-0 / 231-595-7	Conflicting results have been seen in different studies.	-	-	-

Carcinogenicity

Product / Substance name CAS / EC no.	Other
Hydrochloric acid 7647-01-0 / 231-595-7	No evidence of carcinogenicity in animal studies

STOT-single exposure

Product / Substance name CAS / EC no.	Result
Hydrochloric acid 7647-01-0 / 231-595-7	May cause respiratory irritation.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

Acute fish toxicity

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Hydrochloric acid 7647-01-0 / 231-595-7	LC50	-	48 hours	Leuciscus idus
Hydrochloric acid 7647-01-0 / 231-595-7	LC50	282 mg/l	96 hours	Gambusia affinis (Mosquito fish)

Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Hydrochloric acid 7647-01-0 / 231-595-7	EC50	56 mg/l	72 hours	Daphnia magna

Chronical toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Titanium (III) chloride 7705-07-9 / 231-728-9	LC50	7.31 mg/l	28 days	Onchorhynchus mykiss (Rainbow trout)

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

No data available

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

14.1. UN number

3264

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Titanium (III) chloride 20% in 4M hydrochloric acid)

IMDG proper shipping name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Titanium (III) chloride 20% in 4M hydrochloric acid)

IATA proper shipping name

Corrosive liquid, acidic, inorganic, n.o.s. (Titanium (III) chloride 20% in 4M hydrochloric acid)

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2

Issued: 2024-02-27

Replaces SDS: 2022-04-19

14.3. Transport hazard class(es)

Label

ADR/RID/ADN



8

IMDG



8

IATA



8

ADR / RID Class

8

ADR / RID Classification code

C1

ADR / RID hazard identification number

80

IMDG Class

8

IATA Class

8

ADN Class

8

ADN Class Code

CJ

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Titanium (III) chloride 20% in 4M hydrochloric acid



Version number: 2
 Issued: 2024-02-27
 Replaces SDS: 2022-04-19

14.4. Packing group

ADR / RID / ADN: II
 IMDG: II
 IATA: II

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Special precautions for user

Tunnel restriction code: E
 Transport category: 2

IMDG EmS

F-A, S-B

14.7. Maritime transport in bulk according to IMO instruments

IBC Instruction: IBC02

SECTION 15: Regulatory information

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

EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
 This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

National regulations

No data available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Phrase meaning

Met. Corr. 1 - Corrosive to metals, hazard category 1
 Skin Corr. 1B - Skin corrosion, hazard category 1B
 STOT SE 3 - Specific Target Organ Toxicity — Single exposure, hazard category 3
 Pyr. Sol. 1 - Pyrophoric solids, hazard category 1
 Eye Dam. 1 - Serious eye damage, hazard category 1
 H250 Catches fire spontaneously if exposed to air.
 H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.
 H318 Causes serious eye damage.
 H335 May cause respiratory irritation.