

Safety Data Sheet

#90037797 · Full 16-section SDS

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

PRODUCT	CAS NUMBER	FORMULA	VERSION	REVISION DATE
Titanium (III) chloride ca.16.8% (w/v) in 2M hydrochloric acid	7705-07- 9	TiCl₃	10	21 Jul 2026

SECTION 1

Identification

Product name	Titanium (III) chloride ca.16.8% (w/v) in 2M hydrochloric acid
CAS number	7705-07-9
Chemical formula	TiCl ₃
Molecular weight	154.22
SMILES	Cl[Ti](Cl)Cl
EC / EINECS number	<i>Not applicable</i>
Recommended use & restrictions	For research and development. Laboratory chemicals. Manufacture of substances. Not suitable for human or veterinary purposes.
Emergency telephone	0344 892 0111 — National Poisons Information Service (NPIS) (United Kingdom — for healthcare professionals (via TOXBASE))

SECTION 2

Hazard identification

**DANGER**

CODE	HAZARD STATEMENT
H290	May be corrosive to metals
H314 (sub cat. 1B)	Causes severe skin burns and eye damage
CODE	PRECAUTIONARY STATEMENT
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection
P302+352	IF ON SKIN: Wash with soap and water
P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+351+338	IF IN EYES: Rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
P406	Store in a corrosive resistant container with a resistant inner liner
Other hazards (e.g. PBT / vPvB, not classified)	Does not meet PBT or vPvB criteria under REACH Annex XIII. Does not contain components considered to have endocrine-disrupting properties. Does not contain components considered to be persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB).

SECTION 3

Composition / information on ingredients

Purity / concentration	Water (CAS: 7732-18-5)- Concentration: 75.1 - 79.4%- non-hazardous. Titanium (III) Chloride (CAS: 7705-07-9)-Concentration: 16.1- 17.4%- H250, H252, H290, H314, H317, H330, H411, EUH014 Hydrochloric Acid (CAS: 7647-01-0)- Concentration; 4.5 - 7.5%- H290, H314, H318, H335
Impurities / stabilising additives	Distilled water (75-80%)

SECTION 4

First-aid measures

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.

Symptoms / effects & medical attention

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

Inhalation: Single exposure may cause the following adverse effects: Causes severe burns. Difficulty in breathing. 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. Eye contact Single exposure may cause the following adverse effects: Causes serious eye damage. Ingestion Single exposure may cause the following adverse effects: Severe abdominal pain. May cause severe internal injury.

Treat symptomatically. Immediately call a poison centre/medical help.

SECTION 5

Fire-fighting measures

Suitable extinguishing media

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.

Special hazards

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.

Advice for firefighters

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

Personal precautions & PPE	Do not breathe vapour/spray. Avoid contact with skin and eyes. In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
Containment & clean-up methods	Collect with absorbent, non-combustible material into suitable containers.

For specific precautions, see Section 8 and Section 13.

SECTION 7

Handling & storage

Storage temperature	Ambient
Precautions for safe handling	Work under hood. Take action to prevent static discharges. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes, ingestion and inhalation. 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.
Conditions for safe storage (incompatibilities)	Store at ambient temperature in a dry, closed container. Air sensitive. Handle and store contents under inert gas. Storage class: 8B: Corrosive. Not combustible.

SECTION 8

Exposure controls / personal protection

Occupational exposure limits (OEL / WEL)	<i>Not applicable</i>
DNEC/PNEC data	<i>Not applicable</i>
Eye / face protection	Chemical splash goggles Wear eye/face protection as recommended. All eye/face protection should comply with EN ISO 16321-1:2022.
Skin / hand protection	Wear protective gloves (Nitrile rubber, glove thickness 0.4mm, 8 hours breakthrough time). Use gloves with long sleeves. Wash skin thoroughly after handling.
Respiratory protection	Self-contained breathing apparatus Keep self-contained breathing apparatus readily available for emergency use. Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided. Respiratory equipment: Reusable Air-Purifying Respirator (APR). Filter type: ABEK. Standard: EN 14387.

SECTION 9

Physical & chemical properties

Density (g/mL)	1.22 g/mL DERIVED FROM: LITERATURE
Flash point	Not applicable
Acidity	Acid DERIVED FROM: LITERATURE
Appearance / physical state	Liquid DERIVED FROM: LITERATURE
Colour	Yellow to dark purple DERIVED FROM: LITERATURE
Odour	Not known DERIVED FROM: LITERATURE
Melting / freezing point	No data available
Boiling point	No data available
Solubility (water)	Soluble in water. DERIVED FROM: LITERATURE
pH	No data available
Vapour pressure	No data available
Partition coefficient (log Pow)	No data available
Auto-ignition / decomposition temp	No data available

SECTION 10

Stability & reactivity

Chemical stability / reactivity	Stable under the prescribed storage conditions. May be corrosive to metals.
Conditions to avoid	Air, strong heating.
Incompatible materials	Strong oxidising agents.
Hazardous decomposition products	See section 5.

Toxicological information

Acute toxicity (LD50 / LC50)	Based on available data, the classification criteria are not met. No data available
Skin corrosion / irritation	Hydrochloric acid (CAS: 7647-01-0) CAUSES BURNS Test:- Result: Corrosive. Species: reconstructed human epidermis (RhE)
Eye corrosion / irritation	Hydrochloric acid (CAS: 7647-01-0) Test:- Result: Causes serious eye damage, risk of blindness. Test: - Result: Corrosive. Species: Bovine cornea.
Respiratory / skin sensitisation	Hydrochloric acid (CAS: 7647-01-0) Test: Maximisation test (GPMT). Result: Negative. Species: Guinea pig.
Carcinogenicity	Hydrochloric acid (CAS: 7647-01-0) Germ cell Mutagenicity- Conflicting results have been seen in different studies. Carcinogenicity- No evidence of carcinogenicity in animal studies. Titanium (III) chloride (CAS: 7705-07-9) Test: Miotic recombination assay. Result: Negative. Species: Bacillus ubtilis Test: sister chromatid exchange assay Result: Negative. Species: mammalian cells Test: Ames test. Result: Negative. With and without metabolic activation. Species: Escherichia coli Test: Ames test. Result: Negative. With and without metabolic activation. Species: Salmonella typhimurium
Mutagenicity	<i>No data available</i>
Reproductive toxicity	<i>No data available</i>
STOT (single / repeated exposure)	Hydrochloric acid (CAS: 7647-01-0) May cause respiratory irritation
Aspiration hazard	Based on available data, the classification criteria are not met.
Endocrine disruptors	This product does not contain any known or suspected endocrine disruptors.

SECTION 12

Ecological information**Aquatic toxicity**

Titanium (III) chloride (CAS: 7705-07-9)
LC50 Value: 7.31 mg/l, Duration: 28 days, Species: Onchorhynchus mykiss
(Rainbow trout)

Hydrochloric acid (CAS: 7647-01-0)
LC50, Value: - Duration: 48 hours, Species: Leuciscus idus
LC50, Value: 282 mg/l, Duration: 96 hours, Species: Gambusia affinis
(Mosquito fish)
EC50, Value: 56 mg/l, Duration: 72 hours, Species: Daphnia magna

Persistence & degradability

No data available.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

PBT / vPvB assessment

No data available. This substance/mixture does not meet the vPvB criteria
of REACH Annex XIII

SECTION 13

Disposal considerations**Waste treatment / disposal
methods**

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

SECTION 14

Transport information**UN number**

UN3264

Proper shipping name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

Class

8

Packing group

II

Transport category

2

Tunnel code

(E)

Packing instruction (ADR)

P001

Packing instruction (IMDG)

P001

Environmental hazards

Not applicable.

Special precautions for user

None



SECTION 15

Regulatory information

REACH code Y110

UFI code XFJU-2FVR-FC8Q-EFG6

ECHA notification *Not applicable*

Chemical safety assessment carried out? *Not applicable*

SECTION 16

Other information

Revision notes / other information This MSDS version (10) replaces version 2.2 (25.03.2026)
Version 2.2. replaced version 2.0 (06.02.2026)
Version 2.0 replaced version 1.0 (03.10.2024)

This Safety Data Sheet was generated automatically from the data Molekula holds against this product, in the 16-section GHS/CLP format. Fields shown as "No data available" carry no recorded value; fields shown as "Not applicable" were assessed as not relevant to this substance. For queries, contact Molekula at info@molekula.com.