

**SECTION 1. ----- PRODUCT AND COMPANY IDENTIFICATION-----**

<b>Product Name</b>	Tetramethylammonium chloride (TMAC)
<b>Product Code(s)</b>	TB0935
<b>Recommended Use</b>	For Laboratory Research Use Only Not for Human or Animal Drug Use

**SECTION 2. ----- HAZARDS IDENTIFICATION -----**

**GHS Classification**

Acute toxicity, Oral (Category 2)  
 Acute toxicity, Dermal (Category 3)  
 Skin corrosion/irritation (Category 2)  
 Specific target organ toxicity - single exposure, Oral (Category 1), Central nervous system  
 Chronic aquatic toxicity (Category 2)

**GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H300	Fatal if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H370	Causes damage to organs (Central nervous system) if swallowed.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P311	IF exposed or concerned: Call a POISON CENTER or doctor/ physician.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

Health hazard: 4  
Flammability: 0  
Physical hazards: 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Causes respiratory tract irritation.  
**Skin** Toxic if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** May be fatal if swallowed.

**SECTION 3. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----**

Chemical Name	EC No.	CAS-No	Weight %
Tetramethylammonium chloride	200-880-8	75-57-0	95-100

**SECTION 4. ----- FIRST-AID MEASURES -----**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**SECTION 5. ----- FIRE FIGHTING MEASURES -----**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Hydrogen chloride gas

**Explosion data - sensitivity to mechanical impact**

No data available

**Explosion data - sensitivity to static discharge**

No data available

**SECTION 6. ----- ACCIDENTAL RELEASE MEASURES -----**

**Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

environment must be avoided.

**Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**SECTION 7. ----- HANDLING AND STORAGE-----**

**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Hygroscopic. Store under inert gas.

**SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----**

**PROTECTION Personal protective equipment**

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Full contact**

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

**Splash contact Material: Nitrile rubber**

Minimum layer thickness: 0.11 mm Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

**Eye protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Specific engineering controls**

Use mechanical exhaust or laboratory fumehood to avoid exposure.

**Appearance**

Form crystalline  
Colour white

**Safety data**

pH 6.0 - 8.0 at 100 g/l at 20 °C (68 °F)  
Melting point/freezing point Melting point/range: > 300 °C (> 572 °F) - lit.  
Boiling point No data available  
Flash point No data available  
Ignition temperature No data available  
Auto-ignition temperature No data available  
Lower explosion limit No data available  
Upper explosion limit No data available  
Vapour pressure No data available  
Density No data available  
Water solubility ca.657.6 g/l at 20 °C (68 °F)  
Partition coefficient: n-octanol/water log Pow: -1.599  
Relative vapour density No data available  
Odour No data available  
Odour Threshold No data available  
Evaporation rate No data available

**SECTION 10. -----STABILITY AND REACTIVITY -----****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

No data available

**Conditions to avoid**

hygroscopic

**Materials to avoid**

Strong oxidizing agents, Strong bases

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Hydrogen chloride gas

Other decomposition products - No data available

**SECTION 11. ----- TOXICOLOGICAL INFORMATION -----****Acute toxicity**

Oral LD50

seizure threshold. Skin and Appendages: Other: Hair.

**Inhalation LC50**

**Dermal LD50**

LD50 Dermal - Rat - 537 mg/kg

**Other information on acute toxicity**

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

Eyes - Rabbit - No eye irritation - OECD Test Guideline 405

**Respiratory or skin sensitisation**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**Reproductive toxicity**

No data available

**Teratogenicity**

No data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

Oral - Causes damage to organs. - Central nervous system

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

No data available

**Aspiration hazard**

No data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Causes respiratory tract irritation.
<b>Ingestion</b>	May be fatal if swallowed.
<b>Skin</b>	Toxic if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

No data available

**Additional Information**

RTECS: BS7700000

**SECTION 12. ----- ECOLOGICAL INFORMATION -----**

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 462 mg/l - 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates NOEC - Daphnia magna (Water flea) - 0.03 mg/l - 11 d

**Persistence and degradability**

Biodegradability Result: - Readily biodegradable

**Bioaccumulative potential**

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

**Mobility in soil**

No data available

**PBT and vPvB assessment**

No data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life with long lasting effects.

**SECTION 13. ----- DISPOSAL CONSIDERATIONS -----**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

**SECTION 14. ----- TRANSPORT INFORMATION -----**

**DOT (US)**

UN number: 2811 Class: 6.1 Packing group: II  
Proper shipping name: Toxic solids, organic, n.o.s. (Tetramethylammonium chloride)  
Reportable Quantity (RQ):  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A  
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Tetramethylammonium chloride)  
Marine pollutant: No

**IATA**

UN number: 2811 Class: 6.1 Packing group: II  
Proper shipping name: Toxic solid, organic, n.o.s. (Tetramethylammonium chloride)

**SECTION 15. ----- REGULATORY INFORMATION -----**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

**SECTION 16. ----- OTHER INFORMATION -----**

Further information: no limited for paper copy, just for internal uses.

**Disclaimer**

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**Issuing Date:** 09-Jul-2019

**End of SDS**