

Material Safety Data Sheet

Section 1 Chemical Product and Company Identification

MSDS Name: Tris Buffer pH 7-9
 Product Code: 20-7902 (pH 9, 7), 20-7901 (pH 8)
 Synonyms: tris hydroxymethylaminomethane, addex-tham, tromethanmin, tromethane, tris(hydroxymethyl)methylamine, tromethamine, Addex-Tham, Aminotrimethylolmethane, Aminotris(hydroxymethyl)methane, 1,1,1-tris(hydroxymethyl)methanamine, Pehanorm, Talatrol, Tham-E, Trimethylolaminomethane, Tris, Tris amino, Tris buffer, Tris(hydroxymethyl)aminomethane; Tris(hydroxymethyl)methanamine, Tris(hydroxymethyl)methylamine, Tris-steril, Tris free base, Trisamin, Trisamine, Trisaminol, Trispuffer, Trizma, Trometamol, Trometamole, Tromethane, Tromethanmin, Tutofusin tris, THAM, 2-Amino-2-(Hydroxymethyl)-1,3-propanediol, Apiroserum Tham, 1,1,1-tris(hydroxymethyl)-methylamine, Tris (buffering agent), Tris buffertris hydroxymethyl-aminomethan, 2-(Hydroxymethyl)-2-amino-1,3-propanediol, 2-Amino-2-(hydroxymethyl)propane-1,3-diol, 2-Amino-2-methylol-1,3-propanediol, Tromethamin.

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Section 2 - Composition, Information on Ingredients

CAS	Chemical Name	%	EINECS	Risk Phrases
77-86-1	Tris(hydroxymethyl)aminomethane	10-20	201-064-4	Xi - Irritant R36, R37, R38.
7732-18-5	Water	80-90	None	None
7647-01-0	Hydrochloric Acid	<1	231-595-7	C - Corrosive, R23 R24 R25 R34 R36 R37 R38

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Potential Health Effects

Eye: Causes irritation, redness, and pain.

Skin: Causes irritation to skin. Symptoms include redness, itching, and pain.

Ingestion: Mild alkali. Causes irritation and reddening to the mucous membranes of the mouth, oesophagus, and gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhoea. Large oral doses may cause weakness, collapse, blood clotting and coma. Estimated lethal dose: 50 grams.

- Inhalation: Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath
- Chronic: Chronic dermatitis may follow skin contact.

Section 4 - First Aid Measures

- Eye: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention
- Skin: Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
- Ingestion: Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately.
- Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention
- Chronic: Seek medical attention immediately

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

- Fire: Flash point: Not applicable
 Autoignition temperature: Not applicable
 Flammable limits in air % by volume: lel: 2.5; uel: 12.8
- Explosion: Above flash point, vapour-air mixtures are explosive within flammable limits noted above. Vapours can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. This material may produce a floating fire hazard. Sensitive to static discharge.

Extinguishing Media: Dry chemical, alcohol foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to non-flammable mixtures, protect personnel attempting to stop leak and disperse vapours.

Section 6 - Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapours, to protect personnel attempting to stop leak, and to flush spills away from exposures.

Section 7 - Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid); observe all warnings and precautions listed for the product.

Section 8 - Exposure Controls, Personal Protection

Airborne Exposure Limits: None established for any component.

Ventilation System: In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators (NIOSH Approved): For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear protective gloves and clean body-covering clothing.

Eye Protection: Safety glasses. Maintain eye wash fountain and quick-drench facilities in work area.

Section 9 - Physical and Chemical Properties

Physical State:	Clear, volatile liquid
Colour:	Colourless
Odour:	Odourless
pH:	7-9
Vapour Pressure:	160 @ 20oC
Vapour Density:	>1
Evaporation Rate:	ca. 0.36
Viscosity:	Non-viscous
Boiling Point:	100.21oC
Freezing/Melting Point:	-2.34oC
Decomposition Temperature:	Not available
Solubility in water:	Soluble
Specific Gravity/Density:	1.0 to 1.2 @ 20oC/4oC
Molecular Formula:	Not applicable
Molecular Weight:	Not applicable

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, excess heat.

Incompatibilities with Other Materials: Concentrated nitric and sulphuric acid mixtures, oxidizing materials, chloroform, alkalis, chlorine compounds, acids, potassium t-butoxide.

Hazardous Decomposition Products: Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization will not occur.

Section 11 - Toxicological Information

LD50/LC50: Tris: ORL-RAT LD50 5900 mg kg⁻¹ ; IVN-RAT LD50 1800 mg kg⁻¹ ; IVN-MUS LD50 1210 mg kg⁻¹ ; ORL-RBT LDLO 1000 mg kg⁻¹; Hydrochloric Acid: Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapour (LC50): 1108 ppm 1 hour(s) [Mouse].

Carcinogenicity: This material is not known to cause cancer in animals or humans.

Other: RTECS Number: Hydrochloric Acid MW4025000, Tris (hydroxymethyl) aminomethane TY2900000, Water ZC0110000

Acute Effects on Humans Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Hazardous in case of inhalation (lung irritant).

Section 12 - Ecological Information

Environmental Fate:

When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material is expected to readily biodegrade. When released to water, this material is expected to quickly evaporate. This material has a log octanol-water partition coefficient of less than 3.0. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be moderately degraded by photolysis. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition.

Environmental Toxicity:

This material is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/l.

Persistence and Degradability:

Short term degradation products are not hazardous, but long term degradation products are more hazardous. This product is not expected to persist in biological environments.

Bioaccumulative Potential:

This product is not expected to bioaccumulate.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with government and local regulations.

Section 14 - Transport Information

Shipping Name:	Not regulated
Hazard Class:	Not regulated
UN Number:	Not regulated
Packing Group:	Not regulated

Section 15 - Regulatory Information

European/International Regulations

European Labelling in Accordance with EC Directives

Hazard Symbols: Xi - Irritant

Risk Phrases:

R36 Irritating to eyes, R37 Irritating to respiratory system, R38 Irritating to skin.

Safety Phrases:

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice, S36 Wear suitable protective clothing

Section 16 - Other Information

MSDS Creation Date: 02/04/2008

Revision number: 1

Revision Date: 07/08/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.