

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

1.1. Product identifier

Product form	: Substance
Trade name	: TRIS (HYDROXYMETHYL) AMINOMETHANE
CAS No	: 77-86-1
Product code	: AB02000
Formula	: C4H11NO3
Synonyms	: 1,1,1-tris(hydroxymethyl)methylamine / 1,3-propanediol, 2-amino-2-(hydroxymethyl)- / 2-amino-2-(hydroxymethyl)-1,3-propanediol / 2-amino-2-(hydroxymethyl)propane-1,3-diol / 2-amino-2-hydroxymethyl-1,3-propanediol / 2-amino-2-methylol-1,3-propanediol / addex-tham / aminotrimethylolmethane / aminotris(hydroxymethyl)methane / methanamine, 1,1,1-tris(hydroxymethyl)- / methylamine, 1,1,1-tris(hydroxymethyl)- / pehanorm / TALATROL / THAM / THAM set / THAM-E / trimethylolaminomethane / TRIS / tris (buffering agent) / tris amine buffer / TRIS AMINO / TRIS buffer / TRIS(base) / tris(hydroxymethyl)methanamine / tris(hydroxymethyl)methylamine / trisamin / trisamine / trisaminol / tris-hydroxymethylaminomethan / tris-hydroxymethylaminomethane / TRISPUFFER / TRIS-STERIL / TRIZMA / trometamol / trometamole / tromethamine / TROMETHANE / tromethanmin / tutofusin TRIS

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

Use of the substance/mixture	: Laboratory use/Manufacturing component/Research
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1.3. Details of the supplier of the safety data sheet

AmericanBio, Inc.
 15 Erie Dr.
 Natick, MA 01760 - USA
 T 800.443.0600 - F 508.655.2754
info@americanbio.com - www.americanbio.com

1.4. Emergency telephone number

Emergency number	: 855.835.2572 (U.S.) :: 760.602.8703 (Outside U.S.)
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin Irrit. 2 H315
 Eye Irrit. 2A H319
 STOT SE 3 H335

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US)



GHS07

Signal word (GHS-US)

: Warning

Hazard statements (GHS-US)

: H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H335 - May cause respiratory irritation

Precautionary statements (GHS-US)

: P261 - Avoid breathing dust
 P264 - Wash hands, forearms and face thoroughly after handling
 P271 - Use only outdoors or in a well-ventilated area
 P280 - Wear protective gloves, eye protection, protective clothing
 P302+P352 - IF ON SKIN: Wash with plenty of soap and water
 P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position 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

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P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P321 - Specific treatment (see SECTION 4 on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to Collect all waste in suitable and labelled containers and dispose according to local legislation

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
TRIS (HYDROXYMETHYL) AMINOMETHANE (Main constituent)	(CAS No) 77-86-1	100	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Remove the victim into fresh air. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
- First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get immediate medical advice/attention. Get medical advice/attention. Specific treatment (see Take victim to a doctor if irritation persists on this label).
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist. Do not apply neutralizing agents. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- First-aid measures after ingestion : Rinse mouth with water. Victim is fully conscious: immediately induce vomiting. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm). Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

- Symptoms/injuries after inhalation : Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing. May cause respiratory irritation.
- Symptoms/injuries after skin contact : Red skin. Tingling/irritation of the skin. Causes skin irritation.
- Symptoms/injuries after eye contact : Irritation of the eye tissue. Causes serious eye irritation.
- Symptoms/injuries after ingestion : Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. Diarrhoea. AFTER ABSORPTION OF HIGH QUANTITIES: Change in the haemogramme/blood composition. Feeling of weakness. Disturbances of consciousness. Enlargement/affection of the liver. Affection of the renal tissue.

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

No additional information available

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SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray. Alcohol-resistant foam. Polymer foam. ABC powder. Carbon dioxide. Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Container may slop over if solid jet (water/foam) is applied. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : DIRECT FIRE HAZARD. No data available on direct fire hazard. INDIRECT FIRE HAZARD. No data available on indirect fire hazard.
- Explosion hazard : DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.
- Reactivity : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

5.3. Advice for firefighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
- Firefighting instructions : Dilute toxic gases with water spray. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Heat/fire exposure: gas-tight suit. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes. Evacuate unnecessary personnel.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
- Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

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

- Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Avoid raising dust. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid breathing Avoid breathing {0}message=<specify applicable conditions>|default=dust/fume/gas/mist/vapours/spray|filter=(_)?INHAL_CONDITION_+}. Use only outdoors or in a well-ventilated area.

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Hygiene measures : Wash Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container tightly closed.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Storage temperature : 20 °C

Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) bases.

Storage area : Store in a dry area. Keep container in a well-ventilated place. May be stored under argon. Store at room temperature. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: No data available. steel. iron. cardboard. synthetic material. MATERIAL TO AVOID: No data available. aluminium. copper.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Personal protective equipment : Avoid all unnecessary exposure.

Materials for protective clothing : GIVE GOOD RESISTANCE: rubber.

Hand protection : Gloves. Wear protective gloves.

Eye protection : Face shield. In case of dust production: protective goggles. Chemical goggles or safety glasses.

Skin and body protection : Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing. Wear suitable protective clothing.

Respiratory protection : Dust formation: dust mask. Wear appropriate mask.

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 : Solid

Appearance : Crystalline solid. Crystalline powder.

Molecular mass : 121.14 g/mol

Colour : White to light yellow.

Odour : Amine-like odour. Mild odour.

Odour threshold : No data available

pH : 10 - 11 (5 %)

pH solution : 5 %

Relative evaporation rate (butylacetate=1) : No data available

Melting point : 170 °C

Freezing point : No data available

Boiling point : 219 °C (13 hPa)

Flash point : No data available

Self ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapour pressure : No data available

Relative vapour density at 20 °C : 4.2

Relative density : No data available

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Solubility	: Soluble in water. Soluble in methanol. Soluble in ethyleneglycol. Water: > 55 g/100ml Ethanol: 2.2 g/100ml Acetone: 2 g/100ml
Log Pow	: -1.56
Log Kow	: 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

VOC content	: 0 %
Other properties	: Hygroscopic. Substance has basic reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

10.2. Chemical stability

Unstable on exposure to moisture. Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

TRIS (HYDROXYMETHYL) AMINOMETHANE (f)77-86-1

LD50 oral rat	5900 mg/kg (Rat)
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Skin corrosion/irritation : Causes skin irritation.
pH: 10 - 11 (5 %)

Serious eye damage/irritation : Causes serious eye irritation.
pH: 10 - 11 (5 %)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/injuries after inhalation : Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing. May cause respiratory irritation.

Symptoms/injuries after skin contact : Red skin. Tingling/irritation of the skin. Causes skin irritation.

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Symptoms/injuries after eye contact : Irritation of the eye tissue. Causes serious eye irritation.
Symptoms/injuries after ingestion : Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. Diarrhoea. AFTER ABSORPTION OF HIGH QUANTITIES: Change in the haemogramme/blood composition. Feeling of weakness. Disturbances of consciousness. Enlargement/affection of the liver. Affection of the renal tissue.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Mild water pollutant (surface water). pH shift. No data available on ecotoxicity.

12.2. Persistence and degradability

TRIS (HYDROXYMETHYL) AMINOMETHANE (77-86-1)

Persistence and degradability	Biodegradability in water: no data available. Not established.
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12.3. Bioaccumulative potential

TRIS (HYDROXYMETHYL) AMINOMETHANE (77-86-1)

Log Pow	-1.56
Bioaccumulative potential	Bioaccumulation: not applicable. Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Specific preliminary treatment. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dispose in a safe manner in accordance with local/national regulations.

Additional information : Hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

No dangerous good in sense of transport regulations

Additional information

Other information : No supplementary information available.

State during transport (ADR-RID) : No data available.

ADR

Transport document description : UN N/A N/A

Packing group (ADR) : N/A

Hazard identification number (Kemler No.) : N/A

Classification code (ADR) : N/A

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

TRIS (HYDROXYMETHYL) AMINOMETHANE (77-86-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

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15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

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

Eye Irrit. 2 H319

STOT SE 3 H335

Skin Irrit. 2 H315

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Xi; R36/37/38

Full text of R-phrases: see section 16

15.2.2. National regulations

No additional information available

15.3. US State regulations

No additional information available

SECTION 16: Other information

Other information : None.

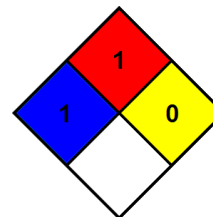
Full text of H-phrases: see section 16:

Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 1 - Must be preheated before ignition can occur.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



SDS US (GHS HazCom 2012)

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