

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supersedes date 31-May-2023

Revision date 18-Mar-2026

Revision Number 7

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

1.1. Product identifier

Product Code(s)	23585
Safety data sheet number	23585
Product Name	TRIS(HYDROXYMETHYL)AMINOMETHANE
EC Number	201-064-4
CAS No	77-86-1
Synonyms	2-AMINO-2-(HYDROXYMETHYL)PROPANE-1,3-DIOL, TRIS AMINO ULTRA PURE, TRIS AMINO ULTRA PC, TROMETHAMINE, TRIS AMINO CRYSTAL, TROMETAMOL, TRIS AMINO BUFFER GRADE, TRIS AMINO AC CRYSTALS, TRIS AMINO ULTRA PC TROMETHAMINE, TRIS / TRIS 4223 HIGH ASSAY USP GMP BIO PHARMA, TRIS 2255 USP LBLE GMP API BIO ACTIVE, TRIS 3251 CHP LBLE GMP BIO EXCIPIENT, TRIS 3220 USP GMP BIO EXCIPIENT, TRIS 3254 USP EP BET GMP BIO EXCIPIENT, TRIS 3255 USP EP JPC LBLE GMP BIO EXCIPIENT, TRIS 5220 BIO ULTRA GRADE, TRIS 5222 ACS BIO ULTRA GRADE
Pure substance/mixture	Substance
Molecular weight	121.1

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

Recommended use	Industrial use Chemical intermediate Buffers and biochemicals Laboratory sample Photochemical additive
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1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address	SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone	SGS - +32 (0)3 575 55 55 (24h)
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SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

Not classified

2.2. Label elements

Not classified

Hazard statements

Not classified

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
TRIS(HYDROXYMETHYL)AMINOMETHANE 77-86-1	90 - 100%	201-064-4	-	Not classified	-	-	-

Full text of H- and EUH-phrases: see section 16This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (UK REACH Article 59)**SECTION 4: First aid measures****4.1. Description of first aid measures****Inhalation**

Remove to fresh air. Get medical attention if symptoms occur.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Skin contact

Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.

Ingestion

Rinse mouth thoroughly with water. No emergency medical treatment necessary.

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

Eyes May cause temporary eye irritation.

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

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

Suitable Extinguishing Media Dry chemical, CO2 or water spray.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Minimise dust generation and accumulation. Dust can form an explosive mixture with air. Containers can burst violently when heated, due to excess pressure build-up.

Hazardous combustion products May emit toxic fumes under fire conditions. Carbon dioxide (CO2). Carbon monoxide. Nitrogen oxides (NOx).

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Personal precautions Ensure adequate ventilation. Do not touch or walk through spilled material. Use personal protection recommended in Section 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Do not allow runoff to sewer, waterway or ground. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Avoid handling which leads to dust formation. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations. Observe good chemical hygiene practices.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Advice on safe handling Ensure adequate ventilation. Avoid generation of dust. Do not breathe dust. Use personal protection recommended in Section 8.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Wash hands and face before breaks and immediately after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Store in a dry place. Store in a closed container. Store away from other materials. Strong acids. Strong oxidising agents. Halogenated hydrocarbons.

Packaging materials Unsuitable container/equipment material. Zinc. copper. Copper alloys. Aluminium. Galvanized iron. Galvanized steel.

7.3. Specific end use(s)

Specific use(s)
See section 1 for more information.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
TRIS(HYDROXYMETHYL)AMINOMETHANE 77-86-1		166.7 mg/kg bw/day [4] [6]	117.5 mg/m ³ [4] [6]

[4] Systemic health effects.
[6] Long term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
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Chemical name	Oral	Dermal	Inhalation
TRIS(HYDROXYMETHYL)AMINOMETHANE 77-86-1	8.3 mg/kg bw/day [4] [6]	83.3 mg/kg bw/day [4] [6]	29 mg/m ³ [4] [6]

[4] Systemic health effects.
[6] Long term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
TRIS(HYDROXYMETHYL)AMINOMETHANE 77-86-1			300 mg/L		

8.2. Exposure controls

Engineering controls Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166.

Hand protection Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Polyvinyl chloride (PVC). Nitrile rubber. Neoprene gloves. Gloves must conform to standard EN 374.

Skin and body protection Wear appropriate clothing to prevent reasonably probable skin contact.

Respiratory protection None under normal use conditions.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Wash hands and face before breaks and immediately after handling the product.

Environmental exposure controls Keep out of drains, sewers, ditches and waterways. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state Solid
Appearance Crystals
Colour white
Odour Odourless.
Odour threshold No information available

Property	Values	Remarks • Method
Melting point / freezing point	>= 165 °C	
Initial boiling point and boiling range	288 °C	
Flammability		No information available.
Flammability Limit in Air		No information available.

Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point		Not applicable.
Autoignition temperature		No information available.
Decomposition temperature		No information available.
pH		No information available.
pH (as aqueous solution)	10.4	solution (1 %).
Kinematic viscosity		No information available.
Dynamic viscosity		No information available.
Water solubility	Soluble in water	
Solubility(ies)		No information available.
Partition coefficient	log Pow: -2.31	OECD 107.
Vapour pressure		negligible.
Relative density		No information available.
Bulk density		No information available.
Liquid Density	No information available	No information available.
Relative vapour density		No information available.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	No information available	
Oxidising properties	No information available	

9.2. Other information

Molecular weight	121.1
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SECTION 10: Stability and reactivity**10.1. Reactivity**

Reactivity	Stable under recommended storage conditions.
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10.2. Chemical stability

Stability	Hygroscopic. Stable under recommended storage conditions. See section 7 for more information.
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Explosion data

Sensitivity to mechanical impact	None.
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Sensitivity to static discharge	None.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Hazardous polymerisation does not occur.
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10.4. Conditions to avoid

Conditions to avoid	Protect from moisture. Keep away from heat. Product may decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.
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10.5. Incompatible materials

Incompatible materials	Strong acids. Strong oxidising agents. Avoid contact with: Aluminium. Copper. Copper alloys. Galvanised metals. Zinc. Avoid unintended contact with: Halogenated hydrocarbons.
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10.6. Hazardous decomposition products

Hazardous decomposition products Carbon dioxide (CO₂). Carbon monoxide. Nitrogen oxides (NO_x).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation	May cause irritation.
Eye contact	May cause temporary eye irritation.
Skin contact	May cause slight irritation.
Ingestion	Gastrointestinal discomfort.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Possible physical irritant from dust particles.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
TRIS(HYDROXYMETHYL)AMINOMETHANE	= 5900 mg/kg (Rat)	> 5000 mg/kg (Rat)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data the classification criteria are not met.

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

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD 404	Rabbit	Dermal			non-irritant

Serious eye damage/eye irritation Based on available data the classification criteria are not met.

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

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD 405	Rabbit	eye			non-irritant

Respiratory or skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity Based on available data the classification criteria are not met.

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

Reproductive toxicity Based on available data the classification criteria are not met.

STOT - single exposure Based on available data the classification criteria are not met.

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard Based on available data the classification criteria are not met.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Not considered to be harmful to aquatic life.

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Brachydanio rerio	LC50	460 mg/L	96 hours	Harmless to aquatic organisms up to the tested concentration
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test	Daphnia magna	EC50	> 980 mg/L	48 hours	Harmless to aquatic organisms up to the tested concentration
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	ErC50	397 mg/L	72 hours	Harmless to aquatic organisms up to the tested concentration
Chronic toxicity	Daphnia magna	NOEC	3.99 mg/L	21 days	Harmless to aquatic organisms up to the tested concentration

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

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Brachydanio rerio	LC50	460 mg/L	96 hours	Harmless to aquatic organisms up to the tested concentration
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test	Daphnia magna	EC50	980 mg/L	48 hours	Harmless to aquatic organisms up to the tested concentration
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	ErC50	397 mg/L	72 hours	Harmless to aquatic organisms up to the tested concentration
Chronic toxicity	Daphnia magna	NOEC	3.99 mg/L	21 days	Harmless to aquatic organisms up to the tested concentration

12.2. Persistence and degradability

Persistence and degradability Readily biodegradable.

Method	Exposure time	Value	Results
OECD Test No. 301F: Ready	28 days	100% Biodegradation	Readily biodegradable

Biodegradability: Manometric Respirometry Test (TG 301 F)			
TRIS(HYDROXYMETHYL)AMINOMETHANE (77-86-1)			
Method	Exposure time	Value	Results
OECD Test No. 301F: Ready Biodegradability: Manometric Respirometry Test (TG 301 F)	28 days	100% Biodegradation	Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Bioconcentration factor (BCF) BCF: < 100

Component Information

Chemical name	Partition coefficient
TRIS(HYDROXYMETHYL)AMINOMETHANE	log Pow: -2.31

12.4. Mobility in soil

Mobility in soil Highly mobile in soil.

Mobility Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
TRIS(HYDROXYMETHYL)AMINOMETHANE	The substance is not PBT / vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste from residues/unused products Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority.

Contaminated packaging Do not reuse empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information**IATA**

- | | |
|-----------------------------------|----------------|
| 14.1 UN number or ID number | Not regulated |
| 14.2 UN proper shipping name | Not regulated |
| 14.3 Transport hazard class(es) | Not regulated |
| 14.4 Packing group | Not regulated |
| 14.5 Environmental hazards | Not applicable |
| 14.6 Special precautions for user | |
| Special Provisions | None |

IMDG

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Authorisations and/or restrictions on use:**

This product does not contain substances subject to authorisation (UK REACH - Annex XIV).

This product does not contain substances subject to restriction (UK REACH - Annex XVII).

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)

Not applicable

The Ozone-Depleting Substances Regulations 2015

Not applicable

The Biocidal Products Regulations 2001 (as amended)

Not applicable

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)

Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)

Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA	- United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL	- Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS	- Japan Existing and New Chemical Substances
IECSC	- China Inventory of Existing Chemical Substances
KECL	- Korean Existing and Evaluated Chemical Substances
PICCS	- Philippines Inventory of Chemicals and Chemical Substances
AIIC	- Australian Inventory of Industrial Chemicals
NZIoC	- New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report A Chemical Safety Assessment is not required for this substance

SECTION 16: Other information**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

SVHC: Substances of Very High Concern for Authorisation:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		
Revision Note ***Indicates updated data since last publication			

Classification procedure

Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method

Aspiration hazard
Ozone

Calculation method
Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By Jitendra Panchal

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**This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work**

Disclaimer

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet