

## 1. Product and Company Identification

<b>Material name</b>	<b>TRIS HYDROCHLORIDE</b>
<b>Version #</b>	02
<b>Revision date</b>	08-30-2011
<b>CAS #</b>	1185-53-1
<b>Product Codes</b>	<b>J.T.Baker: 4103, 4106, 4126</b> <b>Macron: H590</b>
<b>Synonym(s)</b>	2-Amino-2-(hydroxymethyl)-1,3-propanediol, hydrochloride; Tris HCl; Tris (hydroxymethyl) aminomethane Hydrochloride
<b>Manufacturer</b>	Avantor Performance Materials, Inc.
<b>Address</b>	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
<b>Customer Service</b>	855-282-6867
<b>24 Hour Emergency</b>	908-859-2151
<b>Chemtrec</b>	800-424-9300

## 2. Hazards Identification

<b>Emergency overview</b>	WARNING  Irritating to eyes, respiratory system and skin. The toxicological properties of this material have not been fully investigated.
<b>OSHA regulatory status</b>	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
<b>Potential health effects</b>	
<b>Routes of exposure</b>	Inhalation. Skin contact. Eye contact. Ingestion.
<b>Eyes</b>	Causes eye irritation.
<b>Skin</b>	Irritating to skin.
<b>Inhalation</b>	Irritating to respiratory system.
<b>Ingestion</b>	Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.
<b>Target organs</b>	Skin. Eyes. Respiratory system.
<b>Chronic effects</b>	None known.
<b>Potential environmental effects</b>	Ecological injuries are not known or expected under normal use.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
TRIS HYDROCHLORIDE	1185-53-1	99 - 100

## 4. First Aid Measures

<b>First aid procedures</b>	
<b>Eye contact</b>	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops and persists.
<b>Skin contact</b>	Immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if irritation develops and persists.
<b>Inhalation</b>	Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

<b>Ingestion</b>	Drink plenty of water. Seek medical advice. If ingestion of a large amount does occur, call a poison control center immediately.
<b>Notes to physician</b>	Treat symptomatically.
<b>General advice</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

## 5. Fire Fighting Measures

---

<b>Flammable properties</b>	Dust may form explosive mixture with air.
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	Water. Carbon dioxide (CO2). Dry chemical.
<b>Unsuitable extinguishing media</b>	None known.
<b>Protection of firefighters</b>	
<b>Protective equipment and precautions for firefighters</b>	Firefighters should wear full protective gear. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
<b>Special protective equipment for fire-fighters</b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
<b>Specific methods</b>	In the event of fire, cool tanks with water spray. In the event of fire and/or explosion do not breathe fumes.
<b>Hazardous combustion products</b>	Carbon monoxide and carbon dioxide. Nitrogen Oxides (NOx). Hydrogen Chloride (HCl).

## 6. Accidental Release Measures

---

<b>Personal precautions</b>	Keep unnecessary personnel away. Keep upwind. Ventilate the area. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for containment</b>	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Prevent entry into waterways, sewer, basements or confined areas.
<b>Methods for cleaning up</b>	Avoid dust formation.  Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.  Large Spills: Collect dust or particulates using a vacuum cleaner with a HEPA filter. Reduce airborne dust and prevent scattering by moistening with water.  Never return spills in original containers for re-use. Clean contaminated surface thoroughly. Clean up in accordance with all applicable regulations.

## 7. Handling and Storage

---

<b>Handling</b>	Wear appropriate personal protective equipment. Keep formation of airborne dusts to a minimum. Dust may form explosive mixture with air. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.
<b>Storage</b>	Keep container tightly closed. Store in a well-ventilated place.

## 8. Exposure Controls / Personal Protection

---

<b>Exposure guidelines</b>	Not established.
<b>Engineering controls</b>	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

## Personal protective equipment

<b>Eye / face protection</b>	Use tight fitting goggles if dust is generated.
<b>Skin protection</b>	Wear protective gloves. Wear appropriate chemical resistant clothing.
<b>Respiratory protection</b>	Wear respirator if there is dust formation.
<b>General hygiene considerations</b>	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical & Chemical Properties

---

<b>Appearance</b>	Crystalline.
<b>Color</b>	Colorless.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>Physical state</b>	Solid.
<b>Form</b>	Crystals.
<b>pH</b>	Not available.
<b>Melting point</b>	302 - 303.8 °F (150 - 151 °C)
<b>Freezing point</b>	Not available.
<b>Boiling point</b>	Not applicable.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Specific gravity</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Molecular weight</b>	157.59
<b>Molecular formula</b>	C4-Cl-H12-N-O3

## 10. Chemical Stability & Reactivity Information

---

<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Conditions to avoid</b>	Heat, sparks, flames.
<b>Incompatible materials</b>	Strong oxidizing agents. Copper. Aluminum.
<b>Hazardous decomposition products</b>	Carbon oxides. Nitrogen oxides (NOx). Hydrogen chloride.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

---

<b>Sensitization</b>	Not a skin sensitizer.
<b>Acute effects</b>	The toxicological properties of this material have not been fully investigated and its handling and use may be hazardous.
<b>Local effects</b>	Irritating to eyes, respiratory system and skin.

<b>Chronic effects</b>	None known.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Skin corrosion/irritation</b>	Causes skin irritation.
<b>Epidemiology</b>	No epidemiological data is available for this product.
<b>Mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Neurological effects</b>	None known.
<b>Reproductive effects</b>	Contains no ingredient listed as toxic to reproduction
<b>Teratogenicity</b>	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
<b>Symptoms and target organs</b>	Irritant effects.

## 12. Ecological Information

---

<b>Ecotoxicity</b>	There are no data on the ecotoxicity of this product.
<b>Environmental effects</b>	No data available for this product. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Partition coefficient (n-octanol/water)</b>	Not available

## 13. Disposal Considerations

---

<b>Disposal instructions</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Contaminated packaging</b>	Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

## 14. Transport Information

---

<b>DOT</b>	Not regulated as dangerous goods.
<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.

## 15. Regulatory Information

---

<b>US federal regulations</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.  CERCLA/SARA Hazardous Substances - Not applicable.
-------------------------------	---

### CERCLA (Superfund) reportable quantity

None

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

<b>Hazard categories</b>	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
--------------------------	---

<b>Section 311 hazardous chemical</b>	Yes
---------------------------------------	-----

## Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

## State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

## Saf-T-Data

Health: 2 - Moderate  
Flammability: 2 - Moderate  
Reactivity: 1 - Slight  
Contact: 2 - Moderate  
Lab Protective Equip: B - GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES  
Storage Color Code: G - Green (General Storage)

## 16. Labeling Info

---

### Label Hazard Warning

WARNING

Irritating to eyes, respiratory system and skin.

### Label Precautions

Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.

### Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if irritation develops or persists. Rinse mouth thoroughly. If ingestion of a large amount does occur, call a poison control center immediately.

## 17. Other Information

---

### NFPA ratings

Health: 2  
Flammability: 1  
Instability: 0

**Disclaimer**

THE INFORMATION PRESENTED IN THIS MATERIAL SAFETY DATA SHEET (MSDS/SDS) WAS PREPARED BY TECHNICAL PERSONNEL BASED ON DATA THAT THEY BELIEVE IN THEIR GOOD FAITH JUDGMENT IS ACCURATE. HOWEVER, THE INFORMATION PROVIDED HEREIN IS PROVIDED "AS IS," AND AVANTOR PERFORMANCE MATERIALS MAKES AND GIVES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES REGARDING SUCH INFORMATION AND THE PRODUCT TO WHICH IT RELATES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF ACCURACY, COMPLETENESS, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY, STABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. THIS MSDS/SDS IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PROPERLY TRAINED PERSON USING THIS PRODUCT, AND IS NOT INTENDED TO BE COMPREHENSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING, STORAGE, OR DISPOSAL OF THE PRODUCT. INDIVIDUALS RECEIVING THIS MSDS/SDS MUST ALWAYS EXERCISE THEIR OWN INDEPENDENT JUDGMENT IN DETERMINING THE APPROPRIATENESS OF SUCH ISSUES. ACCORDINGLY, AVANTOR PERFORMANCE MATERIALS ASSUMES NO LIABILITY WHATSOEVER FOR THE USE OF OR RELIANCE UPON THIS INFORMATION. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS, A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR TO VIOLATE ANY FEDERAL, STATE, LOCAL, OR FOREIGN LAWS. AVANTOR PERFORMANCE MATERIALS REMINDS YOU THAT IT IS YOUR LEGAL DUTY TO MAKE ALL INFORMATION IN THIS MSDS/SDS AVAILABLE TO YOUR EMPLOYEES.

**Issue date**

08-30-2011