

MATERIAL SAFETY DATA SHEET

Product name: TREION™ TSFT™ HCR Cation Exchange Resin

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TREITEL CHEMICAL ENGINEERING LTD. encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: TREION™ TSFT™ HCR Ion Exchange Resin

Recommended use of the chemical and restrictions on use

Identified uses: Ion exchange and/or Adsorption process

COMPANY IDENTIFICATION

TREITEL CHEMICAL ENGINEERING LTD.
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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

Label elements

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

Other hazards

Slipping hazard.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

CASRN	Concentration	Component	Classification
CASRN 69011-22-9 EC-No. Polymer Index-No. —	>= 48.0 - <= 52.0 %	Sulfonated polymer of styrene, ethylstyrene and divinylbenzene in the sodium form	Not classified
CASRN 7732-18-5 EC-No. 231-791-2 Index-No. —	>= 48.0 - <= 52.0 %	Water	Not classified

4. FIRST AID MEASURES

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion

products may include and are not limited to: Sulfur oxides. Organic sulfonates. Hydrocarbons. Carbon monoxide. Carbon dioxide. Benzene compounds.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Spilled material may cause a slipping hazard. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Sweep up. Recover spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Static electricity can accumulate on dry beads. Leave room for expansion as dry resin swells upon wetting and/or changing ionic form. Equipment construction material should be compatible with feed, regenerant, ionic form and effluent of the ion exchange process. Avoid contact with eyes. Avoid generating and breathing dust. Wash thoroughly after handling. Keep container closed. Good housekeeping and controlling of dusts are necessary for safe handling of product.

Conditions for safe storage: Store in a dry place. Keep container tightly closed when not in use. Preferred storage temperature is in the lower half of the range given below.

Storage stability: Shelf life: Use within 36 Month

Storage temperature: 0 - 50 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Exposure limits have not been established for those substances listed in the composition, if any have been disclosed.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Other protection: No precautions other than clean body-covering clothing should be needed.

Respiratory protection: Under intended handling conditions, no respiratory protection should be needed.

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Beads
Color	White to yellow
Odor	Odorless to mild
Odor Threshold	No test data available
pH	Not applicable
Melting point/range	Not applicable
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup Not applicable
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not expected to form explosive dust-air mixtures.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	1.30 <i>Literature</i>
Water solubility	Insoluble in water
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable

Explosive properties	No
Oxidizing properties	No
Molecular weight	99,999 kg/mol <i>Calculated.</i>

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with oxidizing materials. Oxidizing agents such as nitric acid attack organic exchange resins under certain conditions. Before using strong oxidizing agents, consult sources knowledgeable in handling such materials. The severity of the reaction with oxidizing materials can vary from slight degradation to an explosive reaction.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aromatic compounds. Hydrocarbons. Organic sulfonates. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Typical for this family of materials.

LD50. Rat. > 5,000 mg/kg

Acute dermal toxicity

No adverse effects anticipated by skin absorption.

The dermal LD50 has not been determined..

Acute inhalation toxicity

Vapors are unlikely due to physical properties. No adverse effects are anticipated from inhalation. For respiratory irritation and narcotic effects: No relevant data found.

As product:

The LC50 has not been determined..

Skin corrosion/irritation

Essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause slight eye irritation.

Solid or dust may cause irritation or corneal injury due to mechanical action.

Sensitization

For skin sensitization:

No relevant data found.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

No relevant data found.

Carcinogenicity

No relevant data found.

Teratogenicity

No relevant data found.

Reproductive toxicity

No relevant data found.

Mutagenicity

No relevant data found.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity**Acute toxicity to fish**

Not expected to be acutely toxic, but material in pellet or bead form may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

Persistence and degradability

Biodegradability: This water-insoluble polymeric solid is expected to be inert in the environment. Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected.

Bioaccumulative potential

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Mobility in soil

In the terrestrial environment, material is expected to remain in the soil.
In the aquatic environment, material will sink and remain in the sediment.

Results of PBT and vPvB assessment

This mixture has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods:

Any disposal practice must be in compliance with all local and national laws and regulations. Do not dump into any sewers, on the ground, or into any body of water.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Listed in Regulation: Not applicable

16. OTHER INFORMATION

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact.

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Information Source and References

This MSDS is prepared from information supplied by internal references within our company.

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