



# SAFETY DATA SHEET

Complies with OSHA Standard 29 CFR 910.1200

Texin  
Elastomeric  
Ligature Ties,  
Chain, Thread,  
and Tubing

## 1. Product and Company Identification

**Product Name:** Texin RXS285 000000 Elastomeric, Orthodontic Ligature Ties, Chain, Thread, and Tubing  
**Material Number:** 82292012  
**Chemical Family:** Aromatic thermoplastic polyurethane  
**Use:** Production of molded plastic articles  
**Restrictions on Use:** Do-It-Yourself Applications  
**Manufacturer Name:** Phoenix Orthodontics  
**Manufacturer Address:** 3250 Palladian Village Drive  
Marietta, GA 30066  
**Business Phone:** 770-643-8896  
**Emergency Phone:** 770-643-8896

## 2. Hazards Identification

### GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

### GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling, or by other means, product may form combustible dust concentrations in air.

## 3. Composition/Information on Ingredients

### Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA HazCom 2012.

## 4. First Aid Measures

### Most Important Symptom(s)/Effect(s)

**Acute:** Contact with heated material can cause thermal burns, causes a slipping hazard if spilled, vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

### Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

### Skin Contact

Get medical attention if thermal burn occurs.

### Inhalation

If inhaled, remove to fresh air.

### Ingestion

Get medical attention.

### Notes to Physician

In the event of possible diisocyanate exposure: **Eyes:** Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. **Skin:** Treat symptomatically as for thermal burn. **Ingestion:** Treat symptomatically. **Inhalation:** Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

## 5. Firefighting Measures

**Suitable Extinguishing Media:** Water, Foam, Dry chemical

**Unsuitable Extinguishing Media:** High Pressure Water Streams

### Fire Fighting Procedure

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

### Hazardous Decomposition Products

By Fire and Thermal Decomposition: Carbon Dioxide, hydrogen cyanide, 4,4'-Diphenylmethane Diisocyanate (MDI) Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons.

### Unusual Fire/Explosion Hazards

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

## 6. Accidental Release Measures

### Spill and Leak Procedures

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).

## 7. Handling and Storage

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conducive equipment is involved.

### Storage Period:

Not Established

**Storage Temperature Maximum:** 30°C (86°F)

### Substances to Avoid

None known.

## 8. Exposure Controls/Personal Protection

The recommendations in this section should not be a substitute for personal protective equipment (PPE) assessment performed by the employer as required by 29 CFR 1910 Subpart I.

### Exposure Limits

Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient conditions. The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

### 4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Threshold Limit Values, as amended  
Time weighted average 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended  
Ceiling Limit Value 0.02 ppm, 0.2 mg/m<sup>3</sup>

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLF, OSHA PEL or supplier recommended occupational exposure limit.

### Industrial Hygiene/Ventilation Measures

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts, and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding, or sawing.

### Respiratory Protection

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

### Hand Protection

Ensure gloves remain in good condition during use and replace if any deterioration is observed.

Wear heat resistant gloves when handling molten material.

### Eye Protection

Safety glasses with side-shields.

### Skin Protection

No special skin protection requirements during normal handling and use.

### Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

## 9. Physical and Chemical Properties

<b>State of Matter:</b>	Solid
<b>Appearance:</b>	Pellets
<b>Color:</b>	Natural
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	No Data Available
<b>pH:</b>	No Data Available
<b>Melting Point:</b>	220°C (428°F)
<b>Boiling Point:</b>	No Data Available
<b>Flash Point:</b>	250°C (482°F)
<b>Evaporation Rate</b>	No Data Available
<b>Flammability:</b>	No Data Available
<b>Lower Explosion Limit:</b>	No Data Available
<b>Upper Explosion Limit:</b>	No Data Available
<b>Vapor Pressure:</b>	No Data Available
<b>Vapor Density:</b>	No Data Available
<b>Density:</b>	No Data Available
<b>Relative Vapor Density:</b>	No Data Available
<b>Specific Gravity:</b>	1.1
<b>Solubility in Water:</b>	Insoluble
<b>Partition Coefficient:</b>	No Data Available
<b>n-octanol/water:</b>	
<b>Auto-ignition Temperature:</b>	>210°C (>410°F)
<b>Decomposition Temperature:</b>	Decomposition begins at 230°C.
<b>Softening Point:</b>	180°C (356°F)
<b>Dynamic Viscosity:</b>	No Data Available
<b>Kinematic Viscosity:</b>	No Data Available
<b>Bulk Density:</b>	500-700 kg/m <sup>3</sup>
<b>Self Ignition:</b>	Not Applicable

## 10. Stability and Reactivity

### Hazardous Reactions

Hazardous polymerisation does not occur.

### Stability

Stable

### Materials to Avoid

None known.

### Conditions to Avoid

Generation of dust clouds.

### Hazardous Decomposition Products

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NO<sub>x</sub>), Hydrocarbons

## 11. Toxicological Information

**Likely Routes of Exposure:** Inhalation  
Skin Contact  
Eye Contact

### Health Effects and Symptoms

**Acute:** Contact with heated material can cause thermal burns, causes a slipping hazard if spilled, vapors released from thermal decomposition may cause irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

### Toxicity Data for: TEXIN RXS285 000000

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur.

#### **Acute Inhalation:**

The following effects reflect the potential health hazards associated with overexposure to MDI. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLF or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLF or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills) has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

#### **Chronic Inhalation:**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLF or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many nonspecific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

#### **Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP, and/or OSHA.

## 12. Ecological Information

### **Ecological Data for: TEXIN RXS285 000000**

The components in this product are either not classified, below the relevant concentration limits, or do not have any ecotoxicity data.

## 13. Disposal Considerations

### **Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state, and local environmental control laws.

## 14. Transportation Information

**Land Transport (DOT):** Non-Regulated  
**Sea Transport (IMDG):** Non-Regulated  
**Air Transport (ICAO/IATA):** Non-Regulated

## 15. Regulatory Information

### **United States Federal Regulations**

**US. Toxic Substances Control Act:** Listed on the Active Portion of the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

### **US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:**

None

### **SARA Section 311/312 Hazard Categories:**

Refer to hazard classification information in Section 2.

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:**

None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) – Supplier Notification Required Components:**

None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

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