



# MATERIAL SAFETY DATA SHEET

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Expando® TSA

**Manufacturer Name:**

Federal Mogul World Headquarters  
26555 Northwestern Highway  
Southfield, Michigan 48033

**Emergency Telephone:**

24hr EP (INFOTRAC): 1-800-535-5053  
International: (001) 352-323-3500

**Non-emergency Telephone:**

1-248-354-9844

**Intended Use:** Expando TSA is a lightweight abrasion protection sleeve braided from flame retardant polyester monofilaments. The properties of the monofilament allow this sleeve to be used in aggressive environments such as those seen in aerospace and military applications. In addition, Expando TSA's expandable construction allows for easy installation over long lengths and enables a large number of diameters to be covered with a limited range of sizes.

**Contact Person:** MSDS Request (voicemail)  
1-248-354-9844

## 2 HAZARDS IDENTIFICATION

**Emergency Overview**

**Physical State:** Solid

**Color:** Various

**Odor:** Odorless

Low hazard for usual industrial or commercial handling by trained personnel. Under normal conditions of processing and use, exposure to the chemical constituents in this product is unlikely. All ingredients are tightly bound in a polymeric matrix that has a negligible vapor pressure so there is a low potential for inhalation or ingestion of ingredients.

**Potential Health Effects**

**Inhalation:** Dust may irritate throat and respiratory system and cause coughing. Fumes from burning this material may cause respiratory irritation with coughing, difficulty in breathing or shortness of breath.

**Eye Contact:** Dust may irritate the eyes. Decomposition products may cause eye irritation.

**Skin Contact:** Molten material will produce thermal burns.

**Ingestion:** No adverse effects due to ingestion are expected.

**Potential Physical / Chemical Effects:** Braid made of flame retardant polyethylene terephthalate (PET) monofilaments. Phosphorus components in the PET give the flame a retardant effect.

**OSHA Regulatory Status:** When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

**Environment:** The environmental hazard of the product is considered to be limited.

<b>3</b>	<b>COMPOSITION / INFORMATION ON INGREDIENTS</b>
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The components are not hazardous or are below required disclosure limits.

Chemical Name	CAS-No.	Concentration*
Flame retardant polyethylene terephthalate (PET)	None	> 90%
Miscellaneous	None	< 10%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

<b>4</b>	<b>FIRST AID MEASURES</b>
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**Inhalation:** Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

**Eye Contact:** Dust in the eyes: Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

**Skin Contact:** Wash contact areas with soap and water. If irritation occurs, get medical assistance.

**Ingestion:** Rinse mouth thoroughly. Drink a few glasses of water or milk. Get medical attention if symptoms occur.

<b>5</b>	<b>FIRE-FIGHTING MEASURES</b>
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**Extinguishing Media:** Extinguish with foam, carbon dioxide, dry powder or water fog.

**Unsuitable Extinguishing Media:** Not applicable.

**Special Fire Fighting Procedures:** Use standard firefighting procedures and consider the hazards of other involved materials.

**Unusual Fire & Explosion Hazards:** By heating and fire, harmful vapors/gases may be formed.

**Hazardous Combustion Products:** Carbon Dioxide, Carbon Monoxide, Esters

**Protective Measures:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

<b>6</b>	<b>ACCIDENTAL RELEASE MEASURES</b>
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**Personal Precautions:** Avoid contact with eyes and prolonged skin contact. Wear necessary protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.

**Spill Cleanup Methods:** Shovel up and place in a container for salvage or disposal. For waste disposal, see section 13 of the MSDS.

**Environmental Precautions:** No specific precautions.

## 7 HANDLING AND STORAGE

**Handling:** All handling to take place in well-ventilated area. Avoid inhalation of dust and contact with skin and eyes. Do not breathe fumes produced at elevated temperatures. Periodically clean work and storage areas to prevent dust accumulation. Observe good industrial hygiene practices.

**Storage:** Store in a cool, dry place out of direct sunlight. Keep container closed.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Limits:** No exposure limits noted for ingredient(s). However ACGIH have limits for “nuisance dusts” which is TLV–TWA = 10mg/m<sup>3</sup>.

**Engineering Controls:** Provide adequate ventilation. If dust or fumes are generated during use, use local exhaust in combination with general ventilation as necessary to remove fumes/dust from the workers' breathing zone and to ensure exposures do not exceed applicable limits.

**Respiratory Protection:** During dust-raising work or inhalation of hot/molten material: Use a NIOSH-approved respirator (See 29 CFR 1910.134, respiratory protection standard).

**Eye Protection:** Use tight fitting goggles if dust is generated.

**Hand Protection:** Gloves are recommended for prolonged use.

**Skin Protection:** It is a good industrial hygiene practice to minimize skin contact. Thermally protective, chemical resistant apron and long sleeves are recommended when volume of hot material is significant.

**Hygiene Measures:** 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.

**Environmental Exposure Controls:** Environmental manager must be informed of all major spillages.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

**Color:** Various

**Odor:** Odorless

**Odor Threshold:** No data available.

**Physical State:** Solid

**pH:** Not applicable

**Melting Point:** 250°C (482°F)  
**Freezing Point:** No data available.  
**Boiling Point:** No data available.  
**Flash Point:** 450°C (842°F)  
**Evaporation Rate:** Not applicable.  
**Flammability (Solid):** No data available.  
**Flammability Limit - Upper (%):** No data available.  
**Flammability Limit - Lower (%):** No data available.  
**Vapor Pressure:** Not applicable.  
**Vapor Density (Air=1):** Not applicable.  
**Specific Gravity:** No data available.  
**Solubility in Water:** Insoluble  
**Solubility (Other):** Not applicable.  
**Partition Coefficient (n-Octanol/water):** Not applicable.  
**Autoignition Temperature:** No data available.  
**Decomposition Temperature:** 300°C (572°F)  
**Viscosity:** No data available.  
**Explosive Properties:** No data available

<b>10</b>	<b>STABILITY AND REACTIVITY</b>
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**Stability:** Stable under normal temperature conditions and recommended use.

**Conditions to Avoid:** Excessive heat.

**Incompatible Materials:** Strong bases. Strong oxidizing agents.

**Hazardous Decomposition Products:**

At Elevated Temperatures:	Esters
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**Possibility of Hazardous Reactions:** Will not occur.

<b>11</b>	<b>TOXICOLOGICAL INFORMATION</b>
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**General Information:** Toxicity data for the product ingredients are not available. The evaluation is based on the toxicity of a similar product.

**Listed Carcinogens:** None

**Product Information**

**Other Acute:** Dusts may irritate the respiratory tract, skin and eyes.

<b>12</b>	<b>ECOLOGICAL INFORMATION</b>
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**Ecotoxicity:** Not expected to be harmful to aquatic organisms.

**Mobility:** The product is non-volatile. The product is insoluble in water.

**Persistence and Degradability:** No data available

**Bioaccumulation Potential:** No data available on bioaccumulation.

**13 DISPOSAL CONSIDERATIONS**

**General Information:** Dispose of waste and residues in accordance with local authority requirements.

**Disposal Methods:** Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

**14 TRANSPORT INFORMATION**

**DOT** Not Regulated

**TDG** Not Regulated

**IATA** Not Regulated

**IMDG** Not Regulated

**15 REGULATORY INFORMATION**

**Canadian Controlled Products Regulations:** This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

**WHMIS Classification:** Does not meet the criteria for a controlled product.

**Inventory Status**

**This product or all components are listed on the following inventory:** DSL, TSCA

**US Regulations**

**CERCLA Hazardous Substance List (40 CFR 302.4):** None

**SARA Title III**

**Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A):** None

**Section 313 Toxic Release Inventory (40 CFR 372):** None

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):** None

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):** None

**Drug Enforcement Act:** None

**TSCA:** No component is listed on TSCA Sections 4(a), 5(a)(2), 5(e) or 12(b).

**State Regulations**

**California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):** None

**Massachusetts Right-To-Know List:** None

**Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)):** None

**Minnesota Hazardous Substances List:** None

**New Jersey Right-To-Know List:** None

**Pennsylvania Right-To-Know List:** None

**Rhode Island Right-To-Know List:** None

<b>16</b>	<b>OTHER INFORMATION</b>
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**HAZARD RATINGS**

	Health Hazard	Fire Hazard	Reactivity Hazard	Special Hazard
<b>NFPA</b>	0	1	0	0

	Health Hazard	Fire Hazard	Reactivity Hazard	Personal Protection
<b>HMIS</b>	0	1	0	E

0 - Minimal; 1- Slight; 2 - Moderate; 3 - Serious; 4 - Severe

E - Safety Glasses, Gloves & Dust Respirator

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**SDS No.:** BH-162

**Disclaimer:** The information provided on this data sheet was abstracted from supplier material safety data sheets and standard references in occupational health and toxicology. Federal-Mogul makes no representation or warranty with respect to the information obtained from such references. The information is however, as of the date provided, true and accurate to the best of Federal-Mogul's knowledge, and should be used to make an independent determination of the methods to safeguard workers and the environment.