MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Expando FR TW
Manufacturer:
Federal Mogul Corporation
26555 Northwestern Highway
Southfield, MI 48033

MSDS# BH-123
24hr Emerg # (Infotrac): 1-800-535-5053
International: 001-352-323-3500
Non-Emerg #: 248-354-9844

SECTION 2: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Bentley-Harris Expando FR TW sleeving is a tough, lightweight product of tightweave design used to oversleeve and protect cable assemblies, hoses, and wire harnesses. Made of braided flame retardant polyester monofilaments, Expando FR TW increases cut-through strength and abrasion resistance of electrical and thermal insulating surfaces. It is UL recognized as a VW-1 component.

Although several of the ingredients used to formulate this product may be hazardous in the raw state, the manufacturing process results in a solid, infusible form, binding and otherwise, rendering the mixture inert. The constituents identified below may be present in quantities greater than 1% (0.1% for carcinogens) that may be released from the product by overheating, burning, machining, abrading, or riveting.

This information provides the minimum criteria for safe usage and handling of this product. Companies using this product should develop their own occupational health program to protect employees from injury or adverse health effects.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No.</th>
<th>% Weight</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermoplastic Polyester</td>
<td>None</td>
<td>&lt;30</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Antimony Trioxide</td>
<td>1327-33-9</td>
<td>&lt;30</td>
<td>0.5 mg/m³</td>
<td>None</td>
</tr>
<tr>
<td>Organic Flame Retardant</td>
<td>None</td>
<td>&lt;45</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

A2: Categorized by ACGIH as Suspected Human Carcinogen; there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Shipped material is not considered hazardous, but operations (overheating, burning, machining, grinding, abrading, or riveting) that can create airborne dust should be avoided.

POTENTIAL HEALTH EFFECTS

Inhalation: Dust from abnormal abrasion or vapors from heating to greater than 300°C can cause irritation.

Skin: Molten material can cause thermal burns

Eye: Solid or dust particle may cause irritation or corneal injury.

Ingestion: Not a probable route of entry.
POTENTIAL HEALTH EFFECTS (continued)

Carcinogenicity:

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermoplastic Polyester</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Antimony Trioxide</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Organic Flame Retardant</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Symptoms and Effects of Exposure to Selected Individual Components

ANTIMONY TRIOXIDE

**Inhalation** – No serious health risks reported from exposure other than a possible change in blood pressure. Prolonged exposure may cause irritation of the nose, throat and mouth.

**Other hazards** – Skin or eye contact may result in coughing, dizziness, headache, nausea, vomiting, diarrhea, stomach cramps, and insomnia.

SECTION 4: FIRST AID MEASURES

**Inhalation:**  Move to fresh air. Seek medical attention.

**Eye Contact:**  Rinse thoroughly with ample amounts of water for 15 minutes. Seek medical attention.

**Skin Contact:**  Wash thoroughly with soap and water. If molten material falls on skin, do not attempt to remove material; cool immediately with water. Seek medical attention.

**Ingestion:**  If significant quantities have been consumed, give two glasses of water to induce vomiting. Seek medical attention.
### SECTION 5: FIRE FIGHTING MEASURES

This product is inherently flame resistant, but may ignite at temperature exceeding 600°C in an oxygen-enriched atmosphere.

**Flashpoint:** N/A  
**LEL:** N/A  
**UEL:** N/A  
**Autoignition Temperature:** N/A

**Extinguishing Media:** Use media suitable for surrounding fire. Product is a flame retardant.

**Unusual Fire and Explosion Hazards:** Toxic vapors can be emitted under fire conditions.

**Special Fire-Fighting Procedure:** Wear self-contained breathing apparatus when extinguishing. Hazardous decomposition products are generated in fire conditions.

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### SECTION 6: ACCIDENTAL RELEASE MEASURES

Scrap monofilament may present a slipping hazard. Sweep up and dispose of according to all federal and state disposal procedures. If dust is generated during machining, abrading or riveting, remove dust by vacuuming or wet-mopping. Vacuums used for this purpose should be equipped with HEPA filters. Do not use compressed air to blow dust from surfaces.

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### SECTION 7: HANDLING AND STORAGE

Do not heat greater than 200°C. Avoid breathing fumes at elevated temperatures. If dust occurs while shipping product, remove dust by vacuuming or wet-mopping. Vacuums used for this purpose should be equipped with HEPA filters. Do not use compressed air to blow dust from surfaces.

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### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ventilation Protection:** Any operation which may produce dust, including machining, grinding, riveting, or abrading this product, should be adequately exhausted to prevent inhalation of dust.

**Respiratory Protection:** Use a NIOSH-approved respirator if there is a potential for exposure to dust, vapor, or fume exceeding PELs or TLVs. (See 29 CFR 1910.134, OSHA Respiratory Protection Standard.)

**Skin Protection:** If skin irritation occurs, gloves and other protective garments may be worn.

**Eyes:** Wear safety glasses or goggles, as necessary, if dust exposure is possible.

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### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Melting Point</td>
<td>240 - 250°C</td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.5 g/cc</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Density (air = 1)</td>
<td>N/A</td>
</tr>
<tr>
<td>% Volatile</td>
<td>N/A</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>N/A</td>
</tr>
<tr>
<td>Form, Color and Odor</td>
<td>Solid, black or white and odorless</td>
</tr>
</tbody>
</table>
SECTION 10: STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and storage conditions.

Incompatibility (Materials/Conditions to Avoid): Oxidizing agents, acids and bases

Hazardous Polymerization: Will not polymerize

Decomposition Products: Avoid exposing to temperatures greater than 300°C for prolonged periods of time. At this temperature, thermal decomposition starts to occur producing by-products such as carbon monoxide, carbon dioxide, hydrogen bromide and bromine.

SECTION 11: TOXICOLOGICAL INFORMATION

Inhalation: Refer to Section 3
Skin: Refer to Section 3
Eye: Refer to Section 3
Ingestion: Refer to Section 3
Acute: None known
Chronic: None known

SECTION 12: ECOLOGICAL INFORMATION

N/A

SECTION 13: DISPOSAL CONSIDERATIONS

Federal and state law regulates disposal of scrap material or dust as solid waste; disposal must be in accordance with federal and state laws. Contact local regulatory agencies for guidance.

SECTION 14: TRANSPORTATION INFORMATION

Proper Shipping Name: Not regulated
Hazard Class: None
Identification Number: None
Packing Group: N/A
Shipping Label: None
Additional Marking Requirement: None
SECTION 15: REGULATORY INFORMATION

<table>
<thead>
<tr>
<th><strong>U.S. TSCA:</strong></th>
<th>All chemicals used in the manufacture of this product are listed on the U.S. Toxic Substances Control Act (TSCA) Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>California Proposition 65:</strong></td>
<td>This product does not contain ingredients known to the State of California to cause cancer, birth defects or other reproductive effects.</td>
</tr>
<tr>
<td><strong>SARA Title III – Section 313 Supplier Notification:</strong></td>
<td>This product does not contain chemicals subject to SARA Title III/CERCLA “reportable quantities” (RQs) and/or “threshold planning quantities” (TPQs) and/or are classified as “Toxic Chemicals” under the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372.</td>
</tr>
<tr>
<td><strong>RCRA Hazardous Waste Code:</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>CERCLA Hazardous Substances:</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>OSHA:</strong></td>
<td>Not Available</td>
</tr>
<tr>
<td><strong>WHMIS Classification:</strong></td>
<td>Not Available</td>
</tr>
</tbody>
</table>

SECTION 16: OTHER INFORMATION

Abbreviations:

- **CAS No.:** Chemical Abstract Services Number
- **OSHA PEL:** U.S. Occupational Safety and Health Administration Permissible Exposure Limit
- **ACGIH TLV:** American Conference of Governmental Industrial Hygienists Threshold Limit Value (2004)
- **N/A:** Not Applicable
- **IARC:** International Agency for Research on Cancer
- **NTP:** National Toxicology Program

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