



MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Expando FRDM MSDS# BH-016	Manufacturer: Federal-Mogul Corporation 26555 Northwestern Highway Southfield, MI 48033 24hr Emerg # (Infotrac): 1-800-535-5053 International: 001-352-323-3500 Non-Emerg #: 248-354-9844
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SECTION 2: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Bentley-Harris Expando FRDM sleeving is a tough, lightweight flame retardant oversleeve designed to offer maximum resistance to abrasion and impact damage. Featuring dual monofilament construction. Expando FRDM smoothly blends larger monofilament strands of flame retardant nylon with support strands of flame retardant polyester. Expando FRDM is recognized as a VW-1 (flame retardant) 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 product inert. The constituents identified below may be present in quantities greater than 1% (0.1% for carcinogens) that may be release from the product by overheating, burning, machining, abrading, or riveting.

This information provides 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.

Ingredient	CAS No.	% Weight	OSHA PEL	ACGIH TLV
Thermoplastic Polyester	None Established	<70	None Established	None Established
Antimony Trioxide	1327-33-9	<70	0.5 mg/m ³	None Established (A2)
Organic Flame Retardant	None Established	<70	None Established	None Established

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 (e.g., overheating, burning, machining, 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:

	COMPONENT NTP IARC OSHA
Thermoplastic Polyester	No No No
Antimony Trioxide	No No No
Organic Flame Retardant	No No No

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.

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. Do not use compressed air to blow dust from surfaces.

SECTION 7: HANDLING AND STORAGE

Do not heat to greater than 200°C. Avoid breathing fumes at elevated temperatures. If dust is generated 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.

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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	N/A	Vapor Pressure:	N/A
Melting Point:	200°C	Vapor Density (air = 1):	N/A
pH:	N/A	% Volatile:	N/A
Specific Gravity:	1.5 g/cc	Evaporation Rate:	N/A
Water Solubility:	Insoluble	Form, black and Odor:	Solid, various and odorless

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 to greater than 300° C for prolonged periods of time. At this temperature, thermal decomposition starts to occur producing such by-products as carbon monoxide, carbon dioxide, hydrogen cyanide, 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 by these modes of transportation
Hazard Class:	None
Identification Number:	None
Packing Group:	N/A
Shipping Label:	None
Additional Marking Requirement:	None

SECTION 15: REGULATORY INFORMATION

U.S. TSCA:	All chemicals used in the manufacture of this product are listed on the U.S. Toxic Substances Control Act (TSCA) Inventory
California Proposition 65:	This product does not contain ingredients known to the State of California to cause cancer, birth defects or other reproductive effects.
SARA Title III – Section 313 Supplier Notification:	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.
RCRA Hazardous Waste Code:	Not Available
CERCLA Hazardous Substances:	Not Available
OSHA:	Not Available
WHMIS Classification:	Not Available

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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