



MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

<p>Product Name: Expando HR</p> <p>MSDS# BH-004</p>	<p>Manufacturer: Federal-Mogul Corporation 26555 Northwestern Highway Southfield, MI 48033</p> <p>24hr Emerg # (Infotrac): 1-800-535-5053 International: 001-352-323-3500 Non-Emerg #: 248-354-9844</p>
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SECTION 2: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Bentley-Harris Expando HR sleeving is a tough, lightweight product used to overseeve and protect cable assemblies, hoses and wire harnesses. Made of braided Halar monofilaments, Expando HR increases cut-through strength and abrasion resistance of electrical and thermal insulating surfaces. It is UL recognized as a VW-1 component. It is self-extinguishing.

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. We have identified all the constituents below present in quantities greater than 1% (0.1% for carcinogens) that may be released from the product by overheating, burning, machining, abrasion, 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.

Ingredient	CAS No.	% Weight	OSHA PEL	ACGIH TLV
Halar Thermoplastic Monofilament	25101-45-5	>90	None Established	None Established

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 and thermal decomposition products generated at temperatures greater than 149°C may cause respiratory irritation.

Skin: Hot material can cause thermal burns.

Eye: Dust particles may cause irritation or corneal damage.

Ingestion: Not a probable route of entry.

POTENTIAL HEALTH EFFECTS (continued)

Carcinogenicity:

	COMPONENT
	NTP IARC OSHA
Halar Thermoplastic Monofilament	No No No

Symptoms and Effects of Exposure to Selected Individual Components

Exposure Hazards:

Halar Thermoplastic Monofilament

When this material is burned, polymer fume fever may result from inhaling smoke emitted by fire. The symptoms of polymer fume fever are chills, fever, chest pain, shortness of breath, and coughing. The symptoms require several hours to develop and generally subside after 48 to 72 hours. When overheated, Halar fluoropolymer may release hydrogen chloride and hydrogen fluoride, which can be toxic in high concentrations and should not be inhaled.

SECTION 4: FIRST AID MEASURES

- Inhalation:** Move to fresh air. Seek medical attention.
- Eye Contact:** Rinse thoroughly with ample amounts of water. Seek medical attention.
- Skin Contact:** Wash thoroughly with soap and water. If molten material falls on skin, do not attempt to remove the material from the skin; cool immediately with water. Seek medical attention.
- Ingestion:** Not a probable route of entry. Seek medical attention.

SECTION 5: FIRE FIGHTING MEASURES

This product is inherently flame resistant, but may ignite at temperatures 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.

Unusual Fire and Explosion Hazards: Hazardous decomposition products may be generated in fire conditions.

Special Fire-Fighting Procedure: Wear self-contained breathing apparatus when extinguishing a fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Scrap monofilament may present a slipping hazard, use good housekeeping practices. If dust is generated during such operations as machining, abrading or riveting, remove the 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 7: HANDLING AND STORAGE

Do not heat to greater than 149°C. Avoid breathing thermal decomposition products. If dust is generated during shipping, remove the 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 exceed applicable PELs or TLVs. (See 29 CFR 1910.134, OSHA Respiratory Protection Standard.)

Skin Protection: Wear gloves when winding or unwinding this product. Hot Halar thermoplastic monofilament can cause severe burns. Gloves and arm protection should be worn while heating this product.

Eyes: Wear safety glasses or goggles, as necessary, if there is potential for dust exposure.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	N/A	Vapor Pressure:	N/A
Melting Point:	230°C	Vapor Density (air = 1):	N/A
pH:	N/A	% Volatile:	N/A
Specific Gravity:	1.68	Evaporation Rate:	N/A
Water Solubility:	Insoluble	Form, Color, and Odor:	Solid, various, none

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and storage conditions.

Incompatibility (Materials/Conditions to Avoid): Alkali metals, interhalogen compounds

Hazardous Polymerization: Will not polymerize

Decomposition Products: Thermal decomposition will start at temperatures greater than 300° C producing such by-products as aliphatic halocarbon gases.

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

Not available

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: N/A
Identification Number: N/A
Packing Group: N/A
Shipping Label: None
Additional Marking Requirement: None

SECTION 15: REGULATORY INFORMATION

U.S. TSCA: 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: OSHA has not established a PEL for Halar thermoplastic monofilament.

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
HEPA:	High efficiency particulate air
NIOSH:	National Institute of Occupational Safety and Health

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