



MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Flexguard DE**Manufacturer:**

Federal Mogul Corporation
26555 Northwestern Highway
Southfield, MI 48033

MSDS# BH-141

24hr Emerg # (Infotrac): 1-800-535-5053

International: 001-352-323-3500**Non-Emerg #: 248-354-9844**

SECTION 2: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

BH-Flexguard DE sleeving products are tough, lightweight oversleeves designed to offer maximum resistance to abrasion and impact damage. Featuring a dual-monofilament construction, BH – Flexguard products smoothly blends larger monofilaments strands of Nylon with support strands of polyester. The ends of the product have an acrylic coating applied that helps with connections.

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
Caprolactam	105-60-2	33	None Established	5 mg/m ³ (*)
Polycapromide	25038-54-4	33	None Established	None Established
Thermoplastic Polyester	None Established	33	None Established	None Established
Inorganic Pigments	None Established	<1	None Established	None Established
Polymer	Proprietary	<1	None Established	None Established
Formaldehyde	50-00-0	<0.05	0.75 ppm	0.3 ppm (C)

*: inhalable fraction, vapor and aerosol

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

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

POTENTIAL HEALTH EFFECTS

Inhalation: Inhalation of dust and vapor may cause moderate respiratory 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
Caprolactam	No No No
Polycapramide	No No No
Inorganic pigments	No No No
Thermoplastic polyester	No No No
Polymers	No No No
Formaldehyde	Yes Yes Yes

Symptoms and Effects of Exposure to Selected Individual Components**CAPROLACTAM**

Moderately toxic by ingestion, skin contact. A skin and eye irritant. When heated to decomposition it emits toxic fumes of nitrogen oxides.

POLYCAPROAMIDE

An experimental neoplasigen by implant route. Moderately toxic by ingestion or inhalation. When heated to decomposition it emits toxic fumes of nitrogen oxides.

FORMALDEHYDE

Acute – Gastrointestinal toxicity may occur if ingested and may cause nausea, vomiting and severe abdominal pain. Exposure to the skin may cause irritation and contact dermatitis at moderately low levels. Inhalation may cause irritation of the upper respiratory tract, burning sensation of the eyes nose, throat, sneezing, coughing, headache, difficulty breathing, nausea, vomiting, and excessive thirst. May cause conjunctivitis, eye irritation/redness and excessive tearing.

Chronic – Sensitizing of respiratory tract and development of an asthmatic reaction to further exposure. Sensitization and allergic skin reaction. Can aggravate asthma and inflammatory or fibrotic pulmonary disease.

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; use good housekeeping practices. If dust is generated during machining, abrading or riveting, remove dust by vacuuming or wet-mopping or in an air-tight polyethylene bag. 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

Store in a cool, dry place. Do not heat to greater than 200°C for prolonged periods of time. Shipping and storage may result in accumulation of dust in shipping containers. If this occurs, remove dust by vacuuming or wetmopping or place in an air-tight polyethylene bag. 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 or fumes. Use local exhaust when heating above 200°C to reduce caprolactam vapor to less than 1 ppm.
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

Product: BH-141

Melting Point:	200°C	Vapor Density (air = 1):	N/A
pH:	N/A	% Volatile:	N/A
Specific Gravity:	1.14 – 1.38 g/cc	Evaporation Rate:	N/A
Water Solubility:	Insoluble	Form, Color and Odor:	Solid, black and odorless

SECTION 10: STABILITY AND REACTIVITY

Stability:	Stable at normal temperatures and storage conditions.
Incompatibility (Materials/Conditions to Avoid):	Strong oxidizing agents, acids, and bases
Hazardous Polymerization:	Will not polymerize
Decomposition Products:	Avoid exposing to temperatures greater than 200° C for prolonged periods of time. At this temperature, thermal decomposition starts to occur producing such by-products as carbon monoxide, hydrogen cyanide, ammonia, carbon dioxide, with trace amounts of acetaldehyde, esters, alcohols, and acids. Caprolactam is released if heated to greater than 200°C.

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

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 contains 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 contains the following chemical 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: <table><tr><th>Ingredient CAS Number</th></tr><tr><td>Formaldehyde 50-00-0</td></tr></table>	Ingredient CAS Number	Formaldehyde 50-00-0
Ingredient CAS Number			
Formaldehyde 50-00-0			
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)
mg/m ³ :	Milligram of constituent per cubic meter of sampled air
ppm:	Parts of constituent per million parts of sampled air
(C):	Ceiling limit, a concentration that shall not be exceeded at any time during the workshift
N/A:	Not Applicable
IARC:	International Agency for Research on Cancer
NTP:	National Toxicology Program
NIOSH:	National Institute of Occupational Safety and Health
HEPA:	High-efficiency particulate air

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