



## MATERIAL SAFETY DATA SHEET

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name:</b> Flexguard® Products  <b>MSDS#</b> TN-103	<b>Manufacturer:</b> Federal-Mogul Corporation 26555 Northwestern Highway Southfield, MI 48033  <b>24hr Emerg # (Infotrac):</b> 1-800-535-5053 <b>International:</b> 001-352-323-3500 <b>Non-Emerg #:</b> 248-354-9844
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### SECTION 2: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Flexguard sleeving products are tough, lightweight oversleeves designed to offer maximum resistance to abrasion and impact damage. Featuring a dual-monofilament construction, Flexguard products smoothly blend larger monofilament strands of nylon with support strands of polyester.

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 released from the product by such operations as 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.

Ingredient	CAS No.	% Weight	OSHA PEL	ACGIH TLV
Caprolactam	105-60-2	33	None Established	5 mg/m <sup>3</sup>
Polycaproamide	25038-54-4	33	None Established	None Established
Thermoplastic polymer	--	33	None Established	None Established
Inorganic pigments	Various	1	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 created from abrasion may cause respiratory irritation.

**Skin:** Prolonged contact may cause skin irritation. Hot materials can cause thermal burns.

**Eye:** Dust particles may cause irritation or corneal injury due to mechanical action.

**Ingestion:** Not a probable route of entry.

**POTENTIAL HEALTH EFFECTS (continued)****Carcinogenicity:**

	<b>COMPONENT</b>
	<b>NTP</b>
	<b>IARC</b>
	<b>OSHA</b>
Caprolactam	No No No
Polycaproamide	No No No
Thermoplastic polymer	No No No
Inorganic pigments	No No No

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

Moderately toxic by ingestion or skin contact. A skin and eye irritant. When heated, could emit toxic concentrations of nitrogen oxides.

**POLYCAPROAMIDE**

An experimental neoplastigen by implant route. Moderately toxic by ingestion or inhalation. When heated, could produce toxic concentrations of nitrogen oxides.

**SECTION 4: FIRST AID MEASURES**

<b>Inhalation:</b>	Move to fresh air. If irritation persists, seek medical attention.
<b>Eye Contact:</b>	Rinse thoroughly with ample amounts of water. If irritation persists, seek medical attention.
<b>Skin Contact:</b>	Do not remove the molten material from skin. Rinse with cool water. Seek medical attention for thermal burn or persistent irritation.
<b>Ingestion:</b>	Not a probable route of entry.

**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 type for surrounding fire.

**Unusual Fire and Explosion Hazards:** None known.

**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. Sweep and dispose. If dust is generated, remove 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**

Store in a cool, dry place. Do not heat over 200°C for prolonged periods of time. Avoid breathing thermal decomposition products at high temperatures. If dust is generated during shipping, remove from container 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, riveting, or abrading this product, should be adequately exhausted to prevent inhalation of dust. Use local exhaust ventilation when heating product above 200°C. Control caprolactam vapor concentrations to less than 1 ppm.

**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:** If skin irritation occurs, gloves and other protective garments may be worn. Wear cloth gloves when handling monofilaments to prevent cuts.

**Eyes:** Wear safety glasses or goggles when cutting the material.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Boiling Point:</b>	N/A	<b>Vapor Pressure:</b>	N/A
<b>Melting Point:</b>	200°C	<b>Vapor Density (air = 1):</b>	N/A
<b>pH:</b>	N/A	<b>% Volatile:</b>	N/A
<b>Specific Gravity:</b>	1.14 – 1.38	<b>Evaporation Rate:</b>	N/A
<b>Water Solubility:</b>	Insoluble	<b>Form, Color, and Odor:</b>	Solid, various colors, odorless

#### SECTION 10: STABILITY AND REACTIVITY

<b>Stability:</b>	Stable at normal temperatures and storage conditions.
<b>Incompatibility (Materials/Conditions to Avoid):</b>	Oxidizing agents, acids, and bases.
<b>Hazardous Polymerization:</b>	Will not polymerize.
<b>Decomposition Products:</b>	Thermal decomposition will start at temperatures exceeding 200°C and may produce such by-products as carbon monoxide, carbon dioxide, hydrogen cyanide, ammonia, carbon dioxide, caprolactam, acetaldehydes, esters, alcohols, and acids. is released when heating above 200°C.

#### SECTION 11: TOXICOLOGICAL INFORMATION

<b>Inhalation:</b>	Refer to Section 3
<b>Skin:</b>	Refer to Section 3
<b>Eye:</b>	Refer to Section 3
<b>Ingestion:</b>	Refer to Section 3
<b>Acute:</b>	None known
<b>Chronic:</b>	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

<b>Proper Shipping Name:</b>	Not regulated
<b>Hazard Class:</b>	N/A
<b>Identification Number:</b>	N/A
<b>Packing Group:</b>	N/A
<b>Shipping Label:</b>	None
<b>Additional Marking Requirement:</b>	None

#### SECTION 15: REGULATORY INFORMATION

<b>U.S. TSCA:</b>	All chemicals used in the manufacture of this product are listed on the U.S. Toxic Substances Control Act (TSCA) Inventory.
<b>California Proposition 65:</b>	This product does not contain ingredients known to the State of California to cause cancer, birth defects or other reproductive effects.
<b>SARA Title III – Section 313 Supplier Notification:</b>	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.
<b>RCRA Hazardous Waste Code:</b>	Not Available
<b>CERCLA Hazardous Substances:</b>	Not Available
<b>OSHA:</b>	PELs not established for constituents or product.
<b>WHMIS Classification:</b>	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 <sup>3</sup> :	Milligrams of contaminant per cubic meter of sampled air, on a weight-to-volume basis.
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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