



## **MATERIAL SAFETY DATA SHEET**

### **SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** Expando PFA

**Manufacturer:**

Federal-Mogul Corporation  
26555 Northwestern Highway  
Southfield, MI 48033

**MSDS#** BH-083

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

**International:** 001-352-323-3500

**Non-Emerg #:** 248-354-9844

### **SECTION 2: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS**

Expando PFA is a braided PFA (Teflon) sleeving used to protect cable assemblies, hoses and wire harnesses from chafing, cutting and abrasion. It is designed for applications up to 260°C. Expando PFA has low flammability and resists damage to most chemicals. It is a protective oversleeve that makes it highly flexible and resistant to trapping water, heat and humidity. Expando PFA is widely used in the aerospace industry for its high temperature capability and ability to retain flexibility at low temperatures.

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 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.

<b>Ingredient</b>	<b>CAS No.</b>	<b>% Weight</b>	<b>OSHA PEL</b>	<b>ACGIH TLV</b>
Perfluoroalkoxy Polymer	26655-00-5	100	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:** Inhalation of dust from abnormal abrasion or vapor may cause respiratory irritation.

**Skin:** Molten material can cause severe burns.

**Eye:** Dust particle may cause irritation due or corneal injury.

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

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

**COMPONENT**  
**NTP**  
**IARC**  
**OSHA**

Perfluoroalkoxy Polymer

No  
 No  
 No

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

**Exposure Hazards:** Inhalation of fumes from overheating may produce flu-like symptoms such as chills, fever, and sometimes coughing for approximately 24 hours. Smokers should avoid contamination of tobacco products and should wash hands before smoking. Small amounts of hydrogen fluoride may also occur from overheating this product. This may produce choking, coughing, and severe eye, nose, and throat irritation followed by 1-2 days of chills, fever, difficulty breathing, cyanosis and pulmonary edema. Individuals with pre-existing diseases of the lungs may have increased susceptibility to the toxicity of excessive exposure from thermal decomposition.

**SECTION 4: FIRST AID MEASURES**

**Inhalation:** Move to fresh air. Seek medical attention if flu-like symptoms occur.

**Eye Contact:** Flush with water for 15 minutes. Seek medical attention.

**Skin Contact:** Rinse the area with cool water. Do not attempt to remove the molten material from the skin. Seek medical attention.

**Ingestion:** Not a probable route of entry. Seek medical attention.

**SECTION 5: FIRE FIGHTING MEASURES**

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

**Extinguishing Media:** Use media suitable for surrounding fire. Water, CO<sub>2</sub>, dry chemical, foam.

**Unusual Fire and Explosion Hazards:** None

**Special Fire Fighting Procedure:** Does not burn without an external source of fuel. 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 and dispose of according to federal, state and local regulations. If cutting, machining or abrading of dust occurs, do not use compressed air to blow away dust.

## SECTION 7: HANDLING AND STORAGE

Avoid heating this product above 149°C. Avoid breathing fumes at elevated temperatures. If dust is generated while shipping product, remove by vacuuming or wet-wiping. Do not use compressed air to blow dust from surfaces.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ventilation Protection:** Local exhaust ventilation is recommended at processing equipment particularly if dust or fumes are present.

**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:** Wear gloves when winding or unwinding this product.

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

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Boiling Point:</b>	N/A	<b>Vapor Pressure:</b>	N/A
<b>Melting Point:</b>	302-310°C	<b>Vapor Density (air = 1):</b>	N/A
<b>pH:</b>	N/A	<b>% Volatile:</b>	N/A
<b>Specific Gravity:</b>	2.10	<b>Evaporation Rate:</b>	N/A
<b>Water Solubility:</b>	Insoluble	<b>Form, Color and Odor:</b>	Solid, natural and odorless

## SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable at normal temperatures and storage conditions.

**Incompatibility (Materials/Conditions to Avoid):** Molten alkali metals, interhalogen compounds

**Hazardous Polymerization:** Will not polymerize

**Decomposition Products:** Above 250°C, gaseous hydrogen fluoride and perfluoroolefins can evolve.

**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. With incineration, gaseous product must be removed by alkaline scrubbing.

**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 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 the following 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
NIOSH:	National Institute for Occupational Safety and Health

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