FEDERAL MOGUL

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Aluminum Thermflex®**

Manufacturer:
Federal-Mogul Corporation
26555 Northwestern Highway
Southfield, MI 48033

MSDS# BH-034

24hr Emerg # (Infotrac): 1-800-535-5053
International: 001-352-323-3500
Non-Emerg #: 248-354-9844

SECTION 2: COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Aluminum Thermflex® is a heat-treated and saturated sleeving that provides superior protection against conducted and convected heat. Constructed of braided fiberglass, Thermflex is used to protect components in high temperature areas. It also provides superior insulation to components that must maintain elevated temperatures to maximize performance efficiency. It is used on wire harnessing, fuel and hydraulic lines, and cables and hoses in close proximity to engines and exhaust systems. Its braided construction provides excellent flexibility in temperatures as low as -70°C.

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 operations such as overheating, burning, machining, abrading, or riveting.

The information in this document 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
Continuous filament glass fibers	65997-17-3	<95	1 f/cc*	1 f/cc or 5 mg/m^3
Aluminum Foil (metal dust)	7429-90-5	<1	15 mg/m^3 (total dust)	10 mg/m^3 (total dust)
Formaldehyde	50-0-0	<0.1	0.75 ppm 2 ppm (STEL)	0.3 ppm (C) (A2)
Tetramethyl-5-decyne-4,7 diol	126-86-3	<1	None established	None established

* proposed

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.

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:

COMPONENT	NTP	IARC	OSHA
Aluminum Foil (metal dust)	No	No	No
Continuous filament glass fibers	No	3	No
Formaldehyde	R	2A	Yes
Tetramethyl-5-decyne-4,7 diol	No	No	No

Symptoms and Effects of Exposure to Selected Individual Components

ALUMINUM FLAKE
Acute - May cause eye irritation, rashes or dermatitis, dizziness, headaches, nausea, vomiting, narcosis, and other nervous system effects.
Chronic – May cause damage to the liver, kidney, or other internal organs.

CONTINUOUS FILAMENT GLASS FIBERS
Acute - May cause irritation to skin, eyes, nose, and throat. May cause skin rash, conjunctivitis, coughing and sneezing.
Chronic – Although some studies of fibrous and mineral wool workers have shown a link to lung cancer in humans, those studies have clearly provided no evidence of a link between lung cancer and continuous filament fiberglass exposure.

FORMALDEHYDE
Acute – Gastrointestinal effects may develop if ingested; may cause nausea, vomiting and severe abdominal pain. Exposure to the skin may cause irritation and contact dermatitis at low to moderate levels. Inhalation may cause irritation of the upper respiratory tract, a burning sensation of the nose and throat, sneezing, coughing, headache, difficulty breathing, nausea, vomiting, and excessive thirst. May cause conjunctivitis, eye irritation/redness/burning and excessive tearing.
Chronic – May sensitize respiratory tract and cause an asthmatic reaction. May sensitize the skin and cause an allergic skin reaction. May aggravate asthma and inflammatory or fibrotic pulmonary disease.

TETRAMETHYL-5-DECYNE-4,7 DIOL
Acute – Contact with the eyes may cause severe irritation and pain. Contact with the skin may cause dryness, itching, or rash. May cause nausea, headache, or respiratory discomfort.
Chronic – Repeated or prolonged exposure may result in liver disorders, nervous system disorders, and adverse eye effects.

SECTION 4: FIRST AID MEASURES

Inhalation: Move to fresh air. If irritation persists, seek medical attention.

Eye Contact: Rinse thoroughly with ample amounts of water. If irritation persists, seek medical attention.

Skin Contact: Wash exposed area with soap and cool water. Avoid scratching irritated areas. If irritation persists, seek medical attention.

Ingestion: Not a probable route of entry.

SECTION 5: FIRE FIGHTING MEASURES

This product is not flammable or combustible, and is flame resistant.

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. Remove and dispose. If dust is generated, 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

Store in a cool, dry place. If dust is generated during shipping, remove the dust from the 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, 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: If skin irritation occurs, gloves and other protective garments may be worn. For cutting operations, gloves and loose-fitting clothing are recommended to be worn.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	N/A	**Vapor Pressure:**	N/A
Melting Point:	Not determined	**Vapor Density (air = 1):**	N/A
pH:	N/A	**% Volatile:**	N/A
Specific Gravity:	2.45	**Evaporation Rate:**	N/A
Water Solubility:	Insoluble	**Form, Color, and Odor:**	Solid, silver, odorless

SECTION 10: STABILITY AND REACTIVITY

Stability:	Stable at normal temperatures and storage conditions. Avoid exposing to temperatures above 200°C for prolonged periods of time.
Incompatibility (Materials/Conditions to Avoid):	Strong oxidizing agents
Hazardous Polymerization:	Will not polymerize.
Decomposition Products:	Thermal decomposition may produce such by-products as carbon monoxide, carbon dioxide, oxides of nitrogen, ammonia, and small amounts of aliphatic or halogenated hydrocarbons.

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. 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: The chemicals used to manufacture this product are listed on the U.S. Toxic Substances Control Act (TSCA) Inventory.

California Proposition 65: This product contains formaldehyde, an ingredient 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 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:

Ingredient	CAS Number
Aluminum (only as fume or dust)	7429-90-5
Formaldehyde	50-00-0

RCRA Hazardous Waste Code: Not Available

CERCLA Hazardous Substances: Formaldehyde is a CERCLA Hazardous Substance.

OSHA: OSHA has developed PELs for the aluminum and formaldehyde constituents, but not for the product.

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 (2005)
ppm:	Parts of contaminant per million parts of sampled air, on a volume-to-volume basis.
f/cc:	Fibers per cubic centimeter of sampled air
mg/m^3:	Milligrams of contaminant per cubic meter of sampled air, on a weight-to-volume basis.
C:	Ceiling limit, a concentration that shall not be exceeded at any time during the exposure period.
A2:	ACGIH has designated this constituent as a suspected human carcinogen.
STEL:	Short-term exposure limit
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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