Material Safety Data Sheet

PRODUCT IDENTITY (As used on the label or friction material) **No. 0211**
FA-501/FA-5001 (MPV 2003FF), FA-906/FA-908 (MPV 2004EE), FA-904 (MPV 2006EE)

1. GENERAL INFORMATION

Manufacturer:
Federal-Mogul Friction Products
1 Grizzly Lane, Smithville, TN 37166
or 2410 Papermill Rd., Winchester, VA 22601
or 145 North Beacon St., Brighton, MA 02135

U.S.A. Contact: Dr Mark Phipps
Federal Mogul Friction Products
1 Grizzly Lane
Smithville
Tennessee 37166.
Information No: 1-800-251-3228 (Ext. 473)
Revised: August 17th 2001
DOT Hazard Code: N/A

2. HAZARDOUS INGREDIENTS AND EXPOSURE LIMITS

The ingredients used to formulate this product are not hazardous in the raw state, the manufacturing process results in a solid, infusible form, binding or otherwise rendering the mixture inert. Included in the table below are the constituents present in quantities greater than 0.1%, that may be released from the product by overheating, burning, machining, abrading, or riveting. **The products listed above may, or may not, contain all of the ingredients listed below.**

Component	OSHA PEL	ACGIH TLV
Non-Vitreous Organic Fibers	2 fibers/cc (respirable) *	
Graphite, Coal, Coke, Carbon Black	0.1 – 3.5 mg/m^3	2 – 3.5 mg/m^3
Antimony Trisulfide (as Antimony)	0.5 mg/m^3	0.5 mg/m^3
Mica	20 mppcf	3 mg/m^3
Mineral Wool	5 mg/m^3 (respirable)	
Hydrated Lime	15 mg/m^3 (total dust)	2 ppm
Barium Sulfate, Calcium Carbonate, Cashew Resin-cured, Cellulose, Iron, Iron oxide, Linseed Oil Resin-Cured, Magnesium Oxide, Nitrile Rubber, Phenolic Resin-cured, Rubber (Powdered), Steel Fiber, Vermiculite	10 mg/m^3 (total dust) 5 mg/m^3 (respirable)	10 mg/m^3 (total dust)

N/A = Not Applicable or Available

* No OSHA limit has been established for this substance. The limit shown is a recommended limit established by a manufacturer of one such fiber.

→ **Warning : This product contains chemicals known to the state of California to cause cancer or reproductive toxicity. However, significant exposure is not anticipated under normal conditions.**

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3. PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling Point:	N/A	**Vapor Density:**	N/A	**Vapor Pressure:**	N/A
Melting Point:	N/A	**Solubility in water:**	Insoluble	**Odor:**	Mild
Color:	Gray	**Specific Gravity:**	1.65 – 2.26 g/cc*	**Form:**	Solid
Evaporation Rate:	0	* SG depends upon formulation			

4. FIRE AND EXPLOSION DATA

Auto-ignition Temperature: This product is inherently flame resistant but may ignite at temperatures exceeding 1112°F (600°C) in an oxygen-enriched atmosphere.

Flammable Limits in Air: % in Air by Volume: LEL: N/A UEL: N/A

Extinguisher Media: Use media suitable for surrounding fire.

Special Fire-Fighting Procedure: None

Unusual Fire and Explosion Hazards: None

5. PHYSICAL HAZARDS AND REACTIVITY DATA

Stability: Stable at normal temperatures and storage conditions.

Incompatibility: None

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

6. HEALTH HAZARDS

Carcinogenicity:	NTP Listed	IARC Listed	NIOSH Listed	OSHA Listed	Prop 65
Carbon Black*	No	2B	No	No	No
Mineral Wool**	Yes	2B	No	No	No
Antimony trisulfide, Barium Sulfate, Calcium Carbonate, Cashew Resin-Cured, Cellulose, Coal, Coke, Graphite, Hydrated Lime, Iron, Iron Oxide, Magnesium Oxide, Mica, Nitrile Rubber, Organic Fibers, Phenolic Resin-cured, Rubber (Powdered), Steel Fiber, Vermiculite	No	No	No	No	No

* IARC classifies this chemical as "possibly carcinogenic to humans." (Group 2B). Proposition 65 only lists "carbon black extracts"

** IARC classifies man-made mineral fibers (diameter <1 μm) as "possibly carcinogenic to humans." (Group 2B) ACGIH classifies synthetic vitreous fibers (rock wool fibers) as "animal carcinogen." (TLV-A3)

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Symptoms and Effects of Exposure to the Individual Components:

ANTIMONY COMPOUNDS
Inhalation hazards – No serious health risks report from exposure other than a possible change in blood pressure. Prolonged exposure may cause irritation of the nose, throat, and mouth. **Other hazards** – Skin or eye contact may result in coughing, dizziness, headache, nausea, vomiting, diarrhea, stomach cramps, and insomnia.

BARIUM SULFATE
Inhalation hazards - Should be treated as a nuisance dust. Exposure to barium sulfate may cause paroxysmal coughing, wheezing, difficult breathing and upper respiratory tract irritation. **Other hazards -** No adverse effects have been reported from ingestion. Eye contact may cause temporary discomfort and irritation.

CALCIUM CARBONATE
A white, finely pulverized powder with no odor,. **Inhalation hazard** - Limestone dust is considered a nuisance dust. Prolonged exposure may cause irritation to throat and lungs. Silica content is not considered high enough to cause silicosis unless exposures are extremely high and prolonged. **Other hazards** - May cause irritation to eyes and skin.

CARBON BLACK
Inhalation hazards – Should be treated as a nuisance dust. Exposure may cause temporary upper respiratory tract discomfort. IARC classifies carbon black as "possibly carcinogenic to humans." (Group2B)

CELLULOSE
A non-toxic, fibrous flock, practically odorless. **Inhalation hazard** - Acute: dryness of nose, eye irritation, and nasal obstruction. Chronic: no data available.

GRAPHITE
Inhalation hazards - Acute: exposure may result in cough, dyspnea, black sputum, and fibrosis. Chronic: Prolonged exposure may cause pneumoconiosis. It is reported that diseases of the respiratory and cardiovascular system may be aggravated by exposure.

HYDRATED LIME
Inhalation hazards - Dust may cause irritation of nasal and respiratory passages. **Other hazards -** Lime is a strong eye irritant, and may cause corrosive damage and blindness. Exposure to dust may cause severe skin irritation, drying and burning, particularly with damaged skin. Swallowing of excessive amounts may damage mucous membranes of digestive system. There are no known chronic hazards.

STEEL & IRON DUST (IRON OXIDE)
Inhalation hazards - Repeated or prolonged exposures to iron dust may cause a form of benign pneumoconiosis called siderosis. Exposure is generally not associated with pulmonary fibrosis or disability unless there is concurrent exposure to other fibrosis-producing materials such as silica. **Other hazards -** Contact may cause skin and eye irritation.

MICA / VERMICULITE
Amber thin flakes that are odorless. Long-term exposure to respirable airborne concentrations above the TLV may lead to pneumoconiosis in which usually no functional lung impairment occurs. The symptoms most frequently reported were chronic cough and dyspnea. Any of several silicates of varying chemical composition but with similar physical properties and crystalline structure. May contain small amounts of crystalline silica.

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NITRILE RUBBER
Inhalation hazards - Gases and fumes from thermal processing or decomposition of this product may cause irritation of respiratory tract, skin and eyes. **Other hazards** - Eyes - may cause eye irritation if material introduced into the eye. Eyes may feel scratchy, become red, and tear.

NON-VITREOUS ORGANIC FIBERS
Inhalation hazards - Overexposure to respirable fibers by inhalation may cause mild and temporary upper respiratory irritation, with discomfort or cough. Based on animal testing, prolonged and repeated exposure to excessive concentrations of respirable fibers may cause permanent lung injury. **Other hazards -** Skin sensitization has not been observed in human tests. The mechanical action of fibers may cause slight skin irritation at clothing binding points and mild irritation of the eyes and nasal passages.

PHENOLIC RESIN - CURED
Inhalation hazards - Dust may cause irritation of nasal and respiratory tracts. Product is fully cured, so formaldehyde vapors should not be present, but if present, inhalation may cause a form of nasal cancer. **Other hazards** - Prolonged exposure can cause irritation, redness, and tearing of the eyes and may lead to sensitization of the skin and dermatitis.

RUBBER (POWDERED)
Inhalation hazards - May cause mild irritation of respiratory tract. Repeated and prolonged inhalation of dust may lead to a benign pneumoconiosis. This condition may cause some lung function impairment but is reversible with reduced exposure. **Other hazards -** Eyes - may cause mild transient eye irritation.

STEEL FIBER
An odorless gray metal containing iron, manganese, silicon and copper. Inhalation hazard - **Acute:** metal fume fever with symptoms of chills, fever, cough, muscle aches and difficulty in breathing from manganese; silicon can cause respiratory tract irritation; copper can cause irritation of eyes, nose, throat and lungs with possibility of metal fume fever, chills, nausea, fever, dry throat, cough, metallic taste. **Chronic:** repeated exposure to iron over time may cause lung changes, benign pneumoconiosis; cumulative central nervous system and lung damage may occur with manganese as well as insomnia, malaise and asthenia; may cause irritation of the lungs and discoloration of the skin and hair.

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation:	Move to fresh air. Obtain medical attention.
Eyes:	Flush with water to remove particulate. Obtain medical attention.
Skin:	Wash thoroughly with soap and water. If persistent irritation develops, obtain medical attention.
Ingestion:	Obtain medical attention.

7. SPECIAL PRECAUTIONS AND SPILL / LEAK PROCEDURES

Handling and Storage: Shipping and storage may result in accumulation of dust in shipping containers. If this occurs, dispose of the container in an airtight polyethylene bag (see disposal instructions below) or remove 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 storage containers.

Release or Spill: If a release of dust occurs during machining, abrading, or riveting, remove 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 the workplace.

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Waste Disposal: Federal and state law regulates disposal of solid waste. Waste should be placed in airtight containers, and disposed of properly. Contact local regulatory agency for guidance.

8. PERSONAL PROTECTION AND CONTROL

Respiratory Protection: Use NIOSH-approved respirator if exposure to dust, vapors, or fumes in concentrations exceeding PEL's or TLV's is possible. (See 29 CFR 1910.134 for respiratory protection standards)

Ventilation: Any operations which may produce dust, including machining, grinding, riveting, or abrading of this product, should be adequately exhausted to prevent inhalation of dust.

Personal Protective Equipment: Suitable respiratory protection should be worn if dust exposure is possible. All regulations and safe practices related to the use of respiratory protection must be observed. Refer to OSHA standards and NIOSH guidelines. If skin irritation occurs, gloves and other protective garments may be worn.

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