



MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Friction Material, Brake Lining

Product No.: 292

Manufacturer Name:
Federal-Mogul World Headquarters
26555 Northwestern Highway
Southfield, Michigan 48033
USA

Emergency Telephone:
24hr EP (INFOTRAC): 1-800-535-5053
International: (001) 352-323-3500

Non-emergency Telephone:
1-248-354-9844

Intended Use: Brake Pads

Contact Person:
MSDS Request (voicemail) 1-248-354-9844

2 HAZARDS IDENTIFICATION

Emergency Overview

Physical State: Solid (article)

Color: Gray-black

Odor: None

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 ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. **WARNING!** May cause allergic respiratory reaction. May cause allergic skin reaction. Causes skin, eye and respiratory tract irritation. The product is not expected to be hazardous to the environment.

Potential Health Effects

Inhalation: The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. May cause allergic respiratory reaction. Causes respiratory tract irritation.

Eye Contact: The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Causes eye irritation. Exposed individuals may experience eye tearing, redness, and discomfort.

Skin Contact: The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Causes skin irritation. May cause allergic skin reaction.

Ingestion: Not relevant, due to the form of the product. However, ingestion of dusts generated during

working operations may cause nausea and vomiting.

Chronic Health Effects: The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Danger of adverse health effects by prolonged exposure. Suspected to cause hypersensitivity and allergy.

Target Organ(s): | Respiratory system | Eye | Lung | Skin |

OSHA Regulatory Status: Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 29 CFR 1910.1200.

3 COMPOSITION / INFORMATION ON INGREDIENTS

General Information: This product contains a variety of ingredients all of which have become part of a bound system both physically and chemically and do not necessarily exhibit the properties of the individual components. The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Not all of the ingredients listed below are found in each formulation listed below.

Chemical Name	CAS-No.	Concentration*
Iron	7439-89-6	40 - 70%
†Synthetic graphite	7782-42-5	10 - 30%
†Barytes	7727-43-7	5 - 10%
Nitrile rubber crumb	9003-18-3	1 - 5%
†Magnesium oxide	1309-48-4	1 - 5%
Acrylic Polymer Elastomer	-	0.1 - 1%
†Cellulose	9004-34-6	0.1 - 1%
†Mullite	1302-93-8	0.1 - 1%

† This chemical is hazardous according to OSHA/WHMIS criteria.

4 FIRST AID MEASURES

Inhalation: Move to fresh air. If breathing stops, provide artificial respiration. For breathing difficulties, oxygen may be necessary. Get medical attention immediately.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Skin Contact: Wash with soap and water. Get medical attention if symptoms occur.

Ingestion: Rinse mouth thoroughly. Seek medical advice.

5 FIRE-FIGHTING MEASURES

Extinguishing Media: This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials. Extinguish with foam, carbon dioxide, dry powder or water fog.

Unsuitable Extinguishing Media: None.

Special Fire Fighting Procedures: Use standard firefighting procedures and consider the hazards of other involved materials.

Unusual Fire & Explosion Hazards: The product is non-combustible. If heated, toxic vapors may be formed.

Hazardous Combustion Products: Carbon Oxides, Hydrogen Sulfide, Metallic fumes, Sulfur Oxides

Protective Measures: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid dust formation. Avoid inhalation of dust and contact with skin and eyes. For personal protection, see section 8 of the MSDS.

Spill Cleanup Methods: Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. For waste disposal, see section 13 of the MSDS.

Environmental Precautions: Do not discharge into drains, water courses or onto the ground. Collect and dispose of spillage as indicated in section 13 of the MSDS.

Notification Procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

7 HANDLING AND STORAGE

Handling: Avoid generation and spreading of dust. Wear suitable protective clothing. Observe good industrial hygiene practices.

Storage: Store in a well-ventilated place. Store away from incompatible materials.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Barytes	US. ACGIH TLV	TWA	10 mg/m ³	
Barytes (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	
Barytes (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m ³	
Cellulose	US. ACGIH TLV	TWA	10 mg/m ³	
Cellulose (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	
Cellulose (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m ³	
Magnesium oxide (Inhalable fraction.)	US. ACGIH TLV	TWA	10 mg/m ³	
Magnesium oxide	US. NIOSH Guide	IDLH	750 mg/m ³	
Magnesium oxide (Fume, total particulate)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	
Mullite (Respirable fraction.)	US. ACGIH TLV	TWA	2 mg/m ³	as Kaolin

Mullite (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	as Kaolin
Mullite (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m ³	as Kaolin
Synthetic graphite (Respirable fraction.)	US. ACGIH TLV	TWA	2 mg/m ³	
Synthetic graphite (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	
Synthetic graphite (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m ³	

Consult Canadian Provincial Regulations and/or Mexican Regulations on exposure limits, if applicable.

Engineering Controls: Use explosion-proof electrical equipment if airborne dust levels are high. Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust.

Respiratory Protection: During dust-raising work: In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: High-efficiency particulate respirator.

Eye Protection: Wear safety glasses with side shields (or goggles).

Hand Protection: Wear protective gloves (i.e. latex, nitrile).

Skin Protection: Risk of contact: Apron and long sleeves are recommended.

Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental Exposure Controls: Environmental manager must be informed of all major spillages.

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PHYSICAL AND CHEMICAL PROPERTIES

Color: Gray-black

Odor: None

Odor Threshold: No data available.

Physical State: Solid (article)

pH: Not applicable

Melting Point: No data available.

Freezing Point: Not applicable.

Boiling Point: No data available.

Flash Point: No data available.

Evaporation Rate: No data available.

Flammability Limit - Upper (%): No data available.

Flammability Limit - Lower (%): No data available.

Vapor Pressure: No data available.

Vapor Density (Air=1): No data available.

Specific Gravity: 2.75 - 3.75 (20°C)

Solubility in Water: No data available.

Solubility (Other): No data available.

Partition Coefficient (n-Octanol/water): No data available.

Autoignition Temperature: No data available.

Decomposition Temperature: No data available.

Volatile Organic Compounds (VOC): Not applicable.

Viscosity: Not applicable.

10	STABILITY AND REACTIVITY
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Stability: This product is stable under expected conditions of use.

Conditions to Avoid: None known.

Incompatible Materials: None known.

Hazardous Decomposition Products:

At Elevated Temperatures:	Hydrogen Sulfide, Metallic fumes, Sulfur Oxides
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Possibility of Hazardous Reactions: Will not occur.

11	TOXICOLOGICAL INFORMATION
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Specified Substance(s)

Acute Toxicity:

Chemical Name	Test Results
Cellulose	Dermal LD50 (Rabbit): >2 g/kg
Cellulose	Oral LD50 (Rat): >5 g/kg
Iron	Oral LD50 (Rat): 30 g/kg

Listed Carcinogens:

Chemical Name	IARC	NTP	OSHA	ACGIH
Barytes	Not Listed	Not Listed	Not Listed	A4
Magnesium oxide	Not Listed	Not Listed	Not Listed	A4

IARC: 1 = Carcinogenic to Humans; 2A = Probably Carcinogenic to Humans; 2B = Possibly Carcinogenic to Humans; 3 = Not classifiable as to carcinogenicity to humans; 4 = Probably not carcinogenic to humans; Not listed = Not evaluated by IARC.

ACGIH: A1 = Confirmed Human Carcinogen; A2 = Suspected Human Carcinogen; A3 = Confirmed Animal Carcinogen; A4 = Not classifiable as a human carcinogen; A5 = Not suspected to be a human carcinogen; Not listed = Not evaluated by ACGIH.

Product Information

Acute Toxicity:

Test Results: No test data available for the product.

Other Acute: The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. May cause eye, skin and respiratory tract irritation. May cause allergic respiratory and skin reactions.

Chronic Toxicity: The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Suspected to cause hypersensitivity and allergy.

12	ECOLOGICAL INFORMATION
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Ecotoxicity: The product is not expected to be hazardous to the environment.

Mobility: The product is insoluble in water and will sediment in water systems.

Persistence and Degradability: The product contains inorganic compounds which are not biodegradable.

Bioaccumulation Potential: No data available.

Other Adverse Effects: No data available.

13	DISPOSAL CONSIDERATIONS
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General Information: Dispose of waste and residues in accordance with local authority requirements.

Disposal Methods: Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Container: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14	TRANSPORT INFORMATION
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DOT Not regulated.

TDG Not regulated.

IATA Not regulated.

IMDG Not regulated.

15	REGULATORY INFORMATION
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Canadian Controlled Products Regulations: This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

WHMIS Classification: Not controlled.

Inventory Status: All ingredients are either listed or exempt from listing on TSCA.

US Regulations

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Name	RQ
Barytes	1000 lbs

SARA Title III

Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A): Not regulated.

Section 311/312 (40 CFR 370):

Acute (Immediate) Chronic (Delayed) Fire Reactive Pressure Generating

Section 313 Toxic Release Inventory (40 CFR 372): Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
Not regulated.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3): Not regulated.

Drug Enforcement Act: Not regulated.

TSCA

TSCA Section 4(a) Final Test Rules & Testing Consent Orders: Not regulated.

TSCA Section 5(a)(2) Final Significant New Use Rules (SNURs) (40CFR 721, Subpt. E): Not regulated.

TSCA Section 5(e) PMN-Substance Consent Orders: Not regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.

State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): Not regulated.

Massachusetts Right-To-Know List: Barytes; Cellulose; Magnesium oxide; Synthetic graphite

Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)): Not regulated.

Minnesota Hazardous Substances List: Barytes; Cellulose; Magnesium oxide; Synthetic graphite

New Jersey Right-To-Know List: Barytes; Magnesium oxide

Pennsylvania Right-To-Know List: Barytes; Cellulose; Magnesium oxide; Synthetic graphite

Rhode Island Right-To-Know List: Cellulose; Magnesium oxide; Synthetic graphite

16	OTHER INFORMATION
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HAZARD RATINGS

	Health Hazard	Fire Hazard	Instability	Special Hazard
NFPA	NA	NA	NA	NA

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

NFPA Label colored diamond code: Blue - Health; Red - Flammability; Yellow - Instability; White - Special Hazards

	Health Hazard	Flammability	Physical Hazard	Personal Protection
HMIS	NA	NA	NA	NONE

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Personal Protection codes: F - Safety Glasses, Gloves, Apron, Dust Respirator

HMIS Label colored bar code: Blue - Health; Red - Flammability; Orange - Physical Hazards; White - Special

General Information: Product name: ABB2045, ABEX6051, ABEX6116, BEX6117, ABEX6121, ABEX6141, ABEX6185, ABEX6204, ABEX6241, ABEX6243, ABEX6275, ABEX911EP1, ADU28, ADU29, ADU30, ADU32, AE1200, AE 1570, AE4190, AE4250, AE50, APS610, APS611, APS612, APS614, APS615, APS616, APS620, APS621, APS622, AZG42, AZG43, AZG44, AZG46, BBS03, BDX6051, BRSD2002, BRSD2004, BRSD2005, COM4004, CQAGM518, CQARM546, CQBM53, CQGM55, CWA6051, DEX104, DJ200BD, DJ201BD, DJ202BD, DJ213BD, DSM1003, DSM1007, DSM1008, ED306, ED309, ED327, FA4001NJAID1 , FA4001, FA4002, FA4004, FA4005, FA4006, FA401, FA402, FA404, FA405, FA406, FA6000, FA6001, FASD1, FERODO3065, FERODO3066, FERODO3070, FERODO3093, FERODO3196, FERODO3238, FERODO4004, FM2045, FM2078, FM2079, FM2083, FM2084, FM2106, FM2186, FM2208, FM2214, FM2254, FM2256, FM2289, GNB116, GNB120, GNB121, GNB123, GNB124, GNB133, HITEC5, IBPXL1, LG115, MDS05, MDS08, MDS20, MDS22, MDS23, MDS26, Mopar111, Mopar113, Mopar117, Mopar122, Mopar123, Mopar129, MPV2000, MPV2002, MPV2012, MPV2016, MPV2019, MSF28, MSF44, NIS100, NISSAN6051, NJAID2, NRP12049, NSS1160, NSS1185, NSS4310, PLA1220, PLB2050, PLB2080, PRENCO6051, PX1160, PX1170, QS211, QS221, QS231, QS241, QS251, QS261, QS271, QS281, QS291, SD1360, SD4444, SST205, SST213, SST217, TQ102, TQ103, TQ109, TQ121, TQ131, TQ716, TQ726, TQ736, TQ746, TQ756, TQ766, TQ776, TQ786, TQ796, TS4110, WAGMX13, WAGMX4, WAGMX5, WAGMX7, WAGMX8, WAGST1, WAGSX1, WAGSX10, WAGSX8, WAGZX11, WAGZX7, WED68, WED73, WED76, WED77, WED80, WED81, WMF11, 1001-49, BBS84, BBS85.

This MSDS contains revisions in the following section(s): 15, 16.

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