



SAFETY DATA SHEET

1. Identification

Product identifier FER9213

Other means of identification

Product code 347

Recommended use Friction material, disc brake pad.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Federal-Mogul Motorparts
World Headquarters
27300 West 11 Mile Road
Southfield, Michigan 48034
USA

Contact person: msds.request@federalmogul.com

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

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement Exempt (manufactured article).

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response No specific first aid measures noted.

Storage Store in original container.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Barium sulphate	7727-43-7	15 - 40
Zirconium oxide	1314-23-4	15 - 40
Magnesium oxide	1309-48-4	5 - 10
1,4-benzenedicarbonyl dichloride polymer with 1,4-benzenediamine	26125-61-1	1 - 5
Antimony sulfide	1345-04-6	1 - 5
Calcium silicate	1344-95-2	1 - 5

Graphite	7782-42-5	1 - 5
Calcium dihydroxide	1305-62-0	0.5 - 1.5

Composition comments	All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. 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.
4. First-aid measures	
Inhalation	Move injured person into fresh air and keep person calm under observation. If necessary, seek hospital and take along these instructions.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention promptly if symptoms persist or occur after washing.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). Get medical attention if any discomfort continues.
Most important symptoms/effects, acute and delayed	Exposed individuals may experience eye tearing, redness, and discomfort.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
5. Fire-fighting measures	
Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	None.
Specific hazards arising from the chemical	By heating and fire, toxic vapors/gases may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	This product is not flammable.
6. Accidental release measures	
Personal precautions, protective equipment and emergency procedures	Use explosion-proof electrical equipment if airborne dust levels are high. Avoid dust formation. Avoid inhalation of dust and contact with skin and eyes. Wear necessary protective equipment. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. Do not vacuum clean unless vacuum cleaners are equipped with HEPA filter. For waste disposal, see Section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Collect and dispose of spillage as indicated in Section 13 of the SDS.
7. Handling and storage	
Precautions for safe handling	Provide adequate ventilation. Avoid dust formation. Avoid inhalation of dust and contact with skin and eyes. Use work methods which minimize dust production. See Section 8 of the SDS for Personal Protective Equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in tightly closed original container. Avoid conditions which create dust. Protect against direct sunlight.

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value	Form
Antimony sulfide (CAS 1345-04-6)	PEL	0.5 mg/m ³	
Barium sulphate (CAS 7727-43-7)	PEL	5 mg/m ³	Respirable fraction.
Calcium dihydroxide (CAS 1305-62-0)	PEL	15 mg/m ³	Total dust.
		5 mg/m ³	Respirable fraction.
Calcium silicate (CAS 1344-95-2)	PEL	15 mg/m ³	Total dust.
		5 mg/m ³	Respirable fraction.
Graphite (CAS 7782-42-5)	PEL	15 mg/m ³	Total dust.
		5 mg/m ³	Respirable fraction.
Magnesium oxide (CAS 1309-48-4)	PEL	15 mg/m ³	Total dust.
		15 mg/m ³	Total particulate.
Zirconium oxide (CAS 1314-23-4)	PEL	5 mg/m ³	

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Graphite (CAS 7782-42-5)	TWA	15 mppcf

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Antimony sulfide (CAS 1345-04-6)	TWA	0.5 mg/m ³	
Barium sulphate (CAS 7727-43-7)	TWA	5 mg/m ³	Inhalable fraction.
Calcium dihydroxide (CAS 1305-62-0)	TWA	5 mg/m ³	
Calcium silicate (CAS 1344-95-2)	TWA	10 mg/m ³	
Graphite (CAS 7782-42-5)	TWA	2 mg/m ³	Respirable fraction.
Magnesium oxide (CAS 1309-48-4)	TWA	10 mg/m ³	Inhalable fraction.
Zirconium oxide (CAS 1314-23-4)	STEL	10 mg/m ³	
	TWA	5 mg/m ³	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Antimony sulfide (CAS 1345-04-6)	TWA	0.5 mg/m ³	
Barium sulphate (CAS 7727-43-7)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total
Calcium dihydroxide (CAS 1305-62-0)	TWA	5 mg/m ³	
Calcium silicate (CAS 1344-95-2)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total
Graphite (CAS 7782-42-5)	TWA	2.5 mg/m ³	Respirable.
Zirconium oxide (CAS 1314-23-4)	STEL	10 mg/m ³	
	TWA	5 mg/m ³	

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate 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.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear approved safety goggles.
Skin protection	
Hand protection	Wear protective gloves (i.e. latex, nitrile). Suitable gloves can be recommended by the glove supplier.
Other	Wear suitable protective clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. 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 1910.134. Respirator type: Any powered, air-purifying respirator with a high-efficiency particulate filter.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	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.

9. Physical and chemical properties

Appearance	Solid (article).
Physical state	Solid.
Form	Solid.
Color	Grey.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	2.25 - 3.25 (20 °C)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not available.
Viscosity	Not applicable.

10. Stability and reactivity

Reactivity	The product is stable and non reactive under normal conditions of storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Will not occur.
Conditions to avoid	None known.

Incompatible materials	None known.
Hazardous decomposition products	Carbon dioxide. Carbon monoxide.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system. Inhalation may lead to deposition in lung and in sufficient quantities produce baritosis.
Skin contact	Dust may irritate skin.
Eye contact	Dust may irritate the eyes.
Ingestion	May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Exposed individuals may experience eye tearing, redness, and discomfort.

Information on toxicological effects

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

Components	Species	Test Results
Barium sulphate (CAS 7727-43-7)		
Acute		
<i>Oral</i>		
LD50	Rat	307 g/kg
Calcium silicate (CAS 1344-95-2)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.08 mg/l, 4 hours
Graphite (CAS 7782-42-5)		
Acute		
<i>Oral</i>		
LD50	Rat	> 10000 mg/kg
Skin corrosion/irritation	Dust may irritate skin.	
Serious eye damage/eye irritation	Dust may irritate the eyes.	
Respiratory or skin sensitization		
Respiratory sensitization	No data available.	
Skin sensitization	Not a skin sensitizer.	
Germ cell mutagenicity	No data available.	
Carcinogenicity	Not classified.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Antimony sulfide (CAS 1345-04-6)		3 Not classifiable as to carcinogenicity to humans.
NTP Report on Carcinogens		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)		
Not regulated.		
Reproductive toxicity	No data available.	
Specific target organ toxicity - single exposure	No data available.	
Specific target organ toxicity - repeated exposure	No data available.	
Aspiration hazard	Not relevant, due to the form of the product.	
Chronic effects	The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. May cause lung damage.	

12. Ecological information

Ecotoxicity Not relevant, due to the form of the product in its manufactured and shipped state.

Components	Species	Test Results
Barium sulphate (CAS 7727-43-7)		
Aquatic		
Crustacea	EC50 Tubificid worm (Tubifex tubifex)	28.61 - 38.03 mg/l, 48 hours

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

Bioaccumulative potential No data available.

Mobility in soil Not relevant, due to the form of the product.

Mobility in general Not relevant, due to the form of the product.

Other adverse effects No data available.

13. Disposal considerations

Disposal instructions 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.

Local disposal regulations Dispose of in accordance with local regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of waste and residues in accordance with local authority requirements.

Contaminated packaging Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information**DOT**

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Antimony sulfide (CAS 1345-04-6)	LISTED
Barium sulphate (CAS 7727-43-7)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

- Immediate Hazard - No
- Delayed Hazard - No
- Fire Hazard - No
- Pressure Hazard - No
- Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Antimony sulfide	1345-04-6	1 - 5

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Antimony sulfide (CAS 1345-04-6)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Barium sulphate (CAS 7727-43-7)
 Calcium dihydroxide (CAS 1305-62-0)
 Calcium silicate (CAS 1344-95-2)
 Graphite (CAS 7782-42-5)
 Magnesium oxide (CAS 1309-48-4)
 Zirconium oxide (CAS 1314-23-4)

US. New Jersey Worker and Community Right-to-Know Act

Antimony sulfide (CAS 1345-04-6)
 Barium sulphate (CAS 7727-43-7)
 Calcium dihydroxide (CAS 1305-62-0)
 Calcium silicate (CAS 1344-95-2)
 Graphite (CAS 7782-42-5)
 Magnesium oxide (CAS 1309-48-4)

US. Pennsylvania Worker and Community Right-to-Know Law

Barium sulphate (CAS 7727-43-7)
 Calcium dihydroxide (CAS 1305-62-0)
 Calcium silicate (CAS 1344-95-2)
 Graphite (CAS 7782-42-5)
 Magnesium oxide (CAS 1309-48-4)

US. Rhode Island RTK

Antimony sulfide (CAS 1345-04-6)

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 27-April-2016

Revision date -

Version # 01

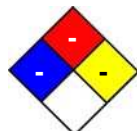
Further information

HMIS® is a registered trade and service mark of the NPCA.

Dash "-" next to each of the entries for the HMIS and NFPA ratings indicates Not Applicable.

HMIS® ratings

Health: -
 Flammability: -
 Physical hazard: -

NFPA ratings

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