SAFETY DATA SHEET

1. Identification

Product identifier **M208**

Other means of identification None.

Recommended use Brake Pad

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturing Supplier Masu Brake Pads Pvt. Ltd.

Address CH7 & CH10, Govt. Industrial Area
Bahadurgarh, Haryana, India

Telephone +91-8603030377

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 This product is not hazardous in the form in which it is shipped by the manufacturer but may become hazardous by downstream activities (e.g. grinding, sanding, cutting, pulverizing) that reduce its particle size. Those hazards are desribed below.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

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

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

Supplemental information As supplied, the product is expected to pose no immediate health or fire hazard. Dusts generated during subsequent processing may pose the hazards described in the Safety Data Sheet. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Overexposure to dust/fume can cause metal fume fever. Symptoms may include dry throat, coughing, sweet metal taste, fever and chills, tight chest, dyspnea, headache, blurred vision, back pain, nausea, vomiting, fatigue. Avoid breathing dust/fume. Prolonged or repeated exposure may cause lung injury.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Barium Sulfate	7727-43-7	20 - 30
Glass, oxide, chemicals	65997-17-3	5 - 10
Phenolic resin	9003-35-4	5 - 10
Mica	12001-26-2	3 - 7
Graphite	7782-42-5	1 - 3
Iron	7439-89-6	1 - 3
Magnesium oxide	1309-48-4	1 - 3

Molybdenum disulfide	1317-33-5	1 - 3
Copper	7440-50-8	0.1 - 1
Zirconium silicate	14940-68-2	Proprietary

Composition comments The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret. Components not listed are either non-hazardous or are below reportable limits. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation In case of inhalation of dust: Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Contact with dust: Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Contact with dust: Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth thoroughly if dust is ingested. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Dusts may irritate the respiratory tract, skin and eyes. Repeated inhalation of dust of this product in very large amounts may cause damage to the lung. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. The symptoms are shivering, fever, malaise and muscular pain. Prolonged exposure to dust may cause chronic effects.

Indication of immediate medical attention and special treatment needed Treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Dust may form explosive mixture with air.
During fire, gases hazardous to health may be formed such as: Boron oxides. Carbon oxides. Metal oxides. Nitrogen oxides. Silicon oxides. Sulfur oxides. Formaldehyde. Rubber fumes.

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 In case of fire do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Dust accumulation from this product may present an explosion hazard in the presence of an ignition source.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Stop the flow of material, if this is without risk. Pick up mechanically. Shovel the material into waste container.

Dust:
Avoid the generation of dusts during clean-up. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Nonsparking tools should be used.

Large Spills: Wet down with water and dike for later disposal. Following product recovery, flush area with water.
Small Spills: Collect dust using a vacuum cleaner 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.

7. Handling and storage

Precautions for safe handling

Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment. Practice good housekeeping. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store in a dry, well-ventilated place. Store in a manner which will minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

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
Barium Sulfate (CAS 7727-43-7)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
Copper (CAS 7440-50-8)	PEL	1 mg/m3	Dust and mist.
		0.1 mg/m3	Fume.
Graphite (CAS 7782-42-5)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
Magnesium oxide (CAS 1309-48-4)	PEL	15 mg/m3	Total particulate.
Molybdenum disulfide (CAS 1317-33-5)	PEL	15 mg/m3	Total dust.
Zirconium silicate (CAS 14940-68-2)	PEL	5 mg/m3	

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

Components	Type	Value	Form
Barium Sulfate (CAS 7727-43-7)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
Graphite (CAS 7782-42-5)	TWA	15 mppcf	
Magnesium oxide (CAS 1309-48-4)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
Mica (CAS 12001-26-2)	TWA	20 mppcf	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Barium Sulfate (CAS 7727-43-7)	TWA	5 mg/m3	Inhalable fraction.
Copper (CAS 7440-50-8)	TWA	1 mg/m3	Dust and mist.
		0.2 mg/m3	Fume.
Graphite (CAS 7782-42-5)	TWA	2 mg/m3	Respirable fraction.
Magnesium oxide (CAS 1309-48-4)	TWA	10 mg/m3	Inhalable fraction.
Mica (CAS 12001-26-2)	TWA	3 mg/m3	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Molybdenum disulfide (CAS 1317-33-5)	TWA	3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
Zirconium silicate (CAS 14940-68-2)	STEL	10 mg/m3	
	TWA	5 mg/m3	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Barium Sulfate (CAS 7727-43-7)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total
Copper (CAS 7440-50-8)	TWA	1 mg/m3	Dust and mist.
		0.1 mg/m3	Fume.
Glass, oxide, chemicals (CAS 65997-17-3)	TWA	3 fibers/cm3	Fiber.
		3 fibers/cm3	Fibrous dust.
		5 mg/m3	fibers, total dust
		5 mg/m3	Fiber, total
Graphite (CAS 7782-42-5)	TWA	2.5 mg/m3	Respirable.
Mica (CAS 12001-26-2)	TWA	3 mg/m3	Respirable.
Zirconium silicate (CAS 14940-68-2)	STEL	10 mg/m3	
	TWA	5 mg/m3	

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

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Provide easy access to water supply and eye wash facilities.

Individual protection measures, such as personal protective equipment

Eye/face protection Unvented, tight fitting goggles should be worn in dusty areas.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Skin protection

Other Wear suitable protective clothing.

Respiratory protection Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Check with respiratory protective equipment suppliers.

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

Physical state Solid.

Form Brake pad.

Color Gray.

Odor Not available.

Odor threshold Not available.

pH	Not applicable.
Melting point/freezing point	Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Dust may form explosive mixture with air.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	2 - 3 (H2O=1)
Solubility(ies)	
Solubility (water)	Insoluble (in water).
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not applicable.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid dust formation. Avoid high temperatures. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Thermal decomposition can produce. Boron oxides. Carbon oxides. Metal oxides. Nitrogen oxides. Silicon oxides. Sulfur oxides. Formaldehyde. Rubber fumes.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Dust may irritate respiratory system. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Prolonged and repeated overexposure to dust can lead to pneumoconiosis.
Skin contact	Dust may irritate skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Dust: May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Dusts may irritate the respiratory tract, skin and eyes. Repeated inhalation of dust of this product in very large amounts may cause damage to the lung. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. The symptoms are shivering, fever, malaise and muscular pain. Prolonged exposure to dust may cause chronic effects.

Information on toxicological effects

Acute toxicity	Not expected to be acutely toxic.

Components	Species	Test Results
Graphite (CAS 7782-42-5)		
Acute		
Inhalation		
LC50	Rat	2 mg/l, 4 hours
Oral		
LD50	Rat	2000 mg/kg
Iron (CAS 7439-89-6)		
Acute		
Oral		
LD50	Rat	30000 mg/kg
Magnesium oxide (CAS 1309-48-4)		
Acute		
Oral		
LD50	Rat	3870 mg/kg
Molybdenum disulfide (CAS 1317-33-5)		
Acute		
Inhalation		
LC50	Rat	> 2820 mg/m3, 4 hours
Phenolic resin (CAS 9003-35-4)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg/day
Oral		
LD50	Rat	> 5000 mg/kg/day

Skin corrosion/irritation Dust may cause skin irritation.

Serious eye damage/eye irritation Dust may cause eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity As supplied, the product is expected to pose no immediate hazard. Dusts or fibers generated during subsequent machining operations (sanding, grinding, drilling...) may pose cancer hazard. Carcinogen hazards are related to the respirable form of the product. (Fiber Glass dust).

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Repeated exposure to high concentrations of dust may adversely affect the lungs and increase the risks of developing respiratory cancer.

12. Ecological information

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Dust: Toxic to aquatic life.

Components		Species	Test Results
Barium Sulfate (CAS 7727-43-7)			
Aquatic			
Algae	EC50	Algae	1.15 - 100 mg/l, 72 hours
	NOEC	Algae	1.15 - 100 mg/l, 72 hours
Acute			
Crustacea	LC50	Aquatic Invertebrates	14.5 mg/l, 48 hours
Fish	LC50	Fish	3.5 - 174 mg/l, 96 hours
Copper (CAS 7440-50-8)			
Aquatic			
Chronic			
Other	NOEC	Juga plicifera	6 µg/l
Graphite (CAS 7782-42-5)			
Aquatic			
Algae	EC50	Algae	100 mg/l, 72 hours
	LOEC	Algae	100 mg/l, 72 hours
	NOEC	Algae	100 mg/l, 72 hours
Acute			
Crustacea	EC50	Aquatic Invertebrates	100 mg/l, 48 hours
	LOEC	Aquatic Invertebrates	100 mg/l, 48 hours
	NOEC	Aquatic Invertebrates	100 mg/l, 48 hours
Fish	LC50	Fish	100 mg/l, 96 hours
	NOEC	Fish	100 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential No data available on bioaccumulation.

Mobility in soil The product is not mobile in soil.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator.

Local disposal regulations Dispose in accordance with all applicable 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 in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

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 This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Barium Sulfate (CAS 7727-43-7)	Listed.
Copper (CAS 7440-50-8)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated “active”.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Copper	7440-50-8	0.1 - 1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

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

Not regulated.

Safe Drinking Water Act (SDWA) Not established.

US state regulations

US. Massachusetts RTK - Substance List

Barium Sulfate (CAS 7727-43-7)
Copper (CAS 7440-50-8)
Glass, oxide, chemicals (CAS 65997-17-3)
Graphite (CAS 7782-42-5)
Magnesium oxide (CAS 1309-48-4)
Mica (CAS 12001-26-2)
Molybdenum disulfide (CAS 1317-33-5)

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

Barium Sulfate (CAS 7727-43-7)
Copper (CAS 7440-50-8)
Glass, oxide, chemicals (CAS 65997-17-3)
Graphite (CAS 7782-42-5)
Magnesium oxide (CAS 1309-48-4)
Mica (CAS 12001-26-2)

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

Barium Sulfate (CAS 7727-43-7)
Copper (CAS 7440-50-8)
Glass, oxide, chemicals (CAS 65997-17-3)
Graphite (CAS 7782-42-5)
Magnesium oxide (CAS 1309-48-4)
Mica (CAS 12001-26-2)

US. Rhode Island RTK

Barium Sulfate (CAS 7727-43-7)
Copper (CAS 7440-50-8)
Glass, oxide, chemicals (CAS 65997-17-3)
Graphite (CAS 7782-42-5)
Magnesium oxide (CAS 1309-48-4)
Mica (CAS 12001-26-2)
Zirconium silicate (CAS 14940-68-2)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Copper (CAS 7440-50-8)
Glass, oxide, chemicals (CAS 65997-17-3)
Iron (CAS 7439-89-6)
Magnesium oxide (CAS 1309-48-4)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*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	09-December-2020
Revision date	-
Version #	01
Further information	HMIS Rating: E - Safety Glasses, Gloves, Dust Respirator
HMIS® ratings	Health: 0 Flammability: 0 Physical hazard: 0 Personal protection: E
Disclaimer	Masu Brake Pads Pvt. Ltd. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.