



MATERIAL SAFETY DATA SHEET

Section I - Product & Company Information

Product Name: Monroe Brake 1027GG - Semi-Metallic Brake Shoes
 Distributor: Tenneco Inc.
 Address: 1 International Drive, Monroe, MI 48161
 Telephone: (734) 243-8000
 Date of MSDS Revision: 11/18/2008

Product Use: Automotive Brake Shoes

Section II - Hazards Identification

Emergency Overview:

Brake shoes are not considered hazardous products as sold. They do not present a fire hazard and will not support combustion but may release irritating and potentially toxic combustion by-products under fire conditions. Breathing dust generated during sanding or grinding may cause respiratory irritation. Prolonged overexposure may result in lung disease or damage. The hazardous components in this product are bound in a resin matrix and are not released during normal handling in finished form.

Section III - Composition / Information on Ingredients

Chemical Name	CAS#
Cured Organic Resins & Rubbers	Mixture
Aramid Materials	26125-1
Fibrous Glass	65997-17-3
Barium Sulfate	7727-43-7
Graphite	7782-42-5
Patroleum Coke	64743-05-1
Mica	12001-26-2
Magnesium Oxide	1309-48-4

Section IV - First Aid Measures

Eye: Do not rub eyes. Flush immediately with large amounts of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. If irritation persists or for foreign body in the eye, get immediate medical attention.

Skin: Wash area of contact with soap and water. Launder contaminated clothing before reuse. Get medical attention if irritation persists.

Inhalation: If symptoms develop, remove person from source of exposure to fresh air. Get medical attention if irritation persists.

Ingestion: Not a potential route of exposure. No first aid needed.

Section V - Firefighting Measures

Extinguishing Media: Use any media suitable for the surrounding fire.

Special Fire Fighting Procedures: Avoid breathing combustion by-products if product is involved in a fire.

Unusual Fire and Explosion Hazards: The organic resin may burn at high temperatures, however, this material will not support combustion.

Combustion Products: Combustion by-products from phenolic resin may include carbon monoxide, carbon dioxide, nitrogen oxides, aldehydes, phenols, cyanide, ammonia and various hydrocarbons.



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Section VI - Accidental Release Measures

Pick up large pieces. Use HEPA vacuum to clean up any dust or wet dust with water where sweeping is necessary. Personal safety and exposure recommendations described elsewhere in this data sheet apply to exposure during clean up of spilled material. Report releases to the environment to appropriate authorities.

Section VII - Handling and Storage

Handling: Avoid generating and breathing dust. Do not grind, sand, drill or machine these parts without taking appropriate precautions. Follow good housekeeping to prevent accumulation of dust on floors, machinery and equipment. Do not dry sweep dust. Wet dust with water before sweeping or use a HEPA vacuum to collect dust and clean equipment. Do not use compressed air for cleaning. Wash thoroughly after work using soap and water.

These products do not contain asbestos, however, the OSHA Asbestos Standard (29CFR 1910.1001) Appendix F, "Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection, Disassembly, Repair and Assembly", contains guidance on minimizing employee exposure during brake operations. Tenneco Inc. recommends that these work practices and engineering controls be implemented even when working with non-asbestos brakes.

Storage: Keep product dry.

Section VIII - Exposure Controls / Personal Protection

Hazardous Components	Exposure Limits
Cured Organic Resins & Rubbers	None Established
Aramid Materials	PEL (OSHA): None Established TLV (ACGIH): None Established AEL (DuPont): 2 Fibers/cc, 8 Hr TWA, respirable fibrils, < 3 µm in diameter, > 5 µm in length, and with an aspect ratio > 3:1:5 mg/m ³ total dust for non-respirable fibers or non-fibrous particulate.
Fibrous Glass	5 mg/m ³ PEL-TWA (respirable dust) 1 fiber/cc or 5 mg/m ³ (inhalable dust), TLV-TWA
Barium Sulfate	PEL: 5 mg/m ³ TLV: 10 mg/m ³ TWA total dust
Graphite	PEL: 5 mg/m ³ as respirable fraction TLV: 2 mg/m ³ as respirable fraction
Petroleum Coke	PEL: 15mg/m ³ for a nuisance dust TLV: 10 mg/m ³ for a nuisance dust
Mica	20 mppcf PEL-TWA 3 mg/m ³ TLV-TWA (respirable dust)
Magnesium Oxide	PEL: 15 mg/m ³ TLV: 10 mg/m ³

PEL - OSHA Permissible Exposure Limit; **TLV** - ACGIH Threshold Limit Value; **TWA** - Time Weighted Average

Engineering Controls: Use with adequate local exhaust ventilation and dust collection as necessary to maintain the concentration of airborne dust below the exposure limits.

Personal Protective Equipment (PPE)



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Eye Protection: Safety glasses recommended.

Skin Protection: Gloves recommended for handling brake parts.

Respiratory Protection: If the concentrations exceed the Threshold Limit Values (TLV), a NIOSH approved particulate respirator appropriate for the exposure levels should be worn. Select based on consideration of the airborne workplace concentrations and duration of exposure. Select and use respirators in accordance with 29 CFR 1910.134, ANSI Z88.2, the NIOSH Respirator Decision Logic and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

Section IX - Physical and Chemical Properties

Boiling Point: Not Applicable

Melting Point: Not Applicable

Vapor Pressure: Not Applicable

Vapor Density (Air=1): Not Applicable

% Solubility in Water: Insoluble

Flashpoint: Not Applicable

Autoignition Temperature: N/A

Odour/Appearance: Metallic parts with gray friction material.

Specific Gravity: Not Available

% Volatile: Not Applicable

Evaporation Rate (Butyl Acetate=1): Not Applicable

pH: Not Applicable

Octanol/Water Partition Coefficient: Not Applicable

Lower Flammability Limit: Not Applicable

Upper Flammability Limit: Not Applicable

Section X - Stability and Reactivity

Stability: Material is stable.

Incompatibility: None determined.

Hazardous Decomposition Products: Combustion by-products from phenolic resin may include carbon monoxide, carbon dioxide, nitrogen oxides, aldehydes, phenols, cyanide, ammonia and various hydrocarbons.

Hazardous Polymerization: Will not occur.

Section XI - Toxicological Information

Potential Health Effects:

Acute Health Effects:

Eye Contact: Dust from product may cause abrasive irritation.

Skin Contact: Prolonged contact with dust from product may cause irritation.

Inhalation: Inhalation of excessive concentrations of dust may cause mucous membrane and respiratory irritation.

Ingestion: Not a potential route of exposure.

Chronic Health Effects: Inhalation of excessive concentrations of any dust, including dust from this material, may cause lung injury. This product contains a small amount of crystalline silica. Prolonged overexposure to respirable crystalline silica may cause silicosis, a progressive, disabling, fatal lung disease. Symptoms of silicosis include cough, shortness of breath, wheezing and reduced pulmonary function. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage is occurring.

Carcinogenicity: The National Toxicology Program (NTP) has classified respirable crystalline silica as reasonably anticipated to be a carcinogen. The International Agency for Research on Cancer (IARC) has classified respirable crystalline silica as a group 1 carcinogen (carcinogenic to humans).

Medical Conditions Aggravated by Exposure: Persons with pre-existing skin and respiratory disorders may be at an increased risk from exposure.

Iron: Oral Rat LD50: >30 gm/kg



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Section XII - Ecological Information

No ecotoxicity data is available. This product is not anticipated to have an adverse effect on the environment.

Section XIII - Disposal Considerations

Landfill in compliance with all applicable Federal, state and local regulations.

Section XIV - Transport Information

U.S. Department of Transportation (DOT): Not Regulated as a Hazardous Material

Section XV - Regulatory Information

U.S. Regulations

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA) Reportable Quantity:

This product is not subject to CERCLA reporting requirements; however, many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

Toxic Substances Control Act (TSCA): Manufactured articles are not subject to TSCA.

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

SARA Section 311/312 Hazard Categories: Delayed Health

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313: None

California Proposition 65:

This product contains chemicals known to the State of California to cause cancer, birth defects or reproductive harm.

Section XVI - Other Information

NFPA Ratings:

Health: 1 Flammability: 0 Reactivity: 0

HMIS Ratings:

Health: 1 Flammability: 0 Reactivity: 0

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