

## MATERIAL SAFETY DATA SHEET

### 1. IDENTIFICATION

**Product Name:** Semi-Metallic Disc Pad (Non-Asbestos)

**Product Edge code:** CEN 106XXXXX 16AA130 EE N16

**Product Use Overview:** These products are intended for use as automotive or truck friction components and are not considered to be hazardous as sold. The ingredients listed below are bound in a non-friable resin matrix, therefore, personal exposure during the normal handling and use is considered minimal. The warnings expressed on this MSDS have been provided to communicate the hazardous nature associated with exposure to the individual components. We have provided this information regardless of the risk of exposure and have considered this during both normal use and foreseeable misuse. Using good work practices will minimize the risk of adverse health effects from overexposure to the hazardous components. As supplied, this friction material does not require sanding, drilling or other machining operations.

### 2. Hazards Identification

**Classification:** Carcinogen Category 1, Specific Target Organ Toxicity – Repeat Exposure Category 1 (lungs and respiratory system), Skin Sensitizer Category 1

**Label Elements:**



Danger!

Hazard Phrases	Precautionary Phrases
May cause an allergic skin reaction May cause cancer by inhalation Causes damage to lungs and respiratory system through prolonged or repeated exposure by inhalation	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust or fume. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, clothing, eye protection and face protection. IF ON SKIN: Wash with plenty of water If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing and wash it before reuse. IF exposed or concerned: Get medical attention. Store locked up. Dispose of contents and container in accordance with local, regional and national regulations.

### 3. Composition / Information on Ingredients

Chemical Name	CAS#	%
Non-hazardous ingredients	Mixture	Balance
Barium Sulfate	7727-43-7	5-35
Synthetic Graphite	7782-42-5	2-20
Magnesium Oxide	1309-48-4	0-16
Natural Graphite	7782-42-5	0-12
Iron Oxide	1309-37-1	1-5
Cellulose	9004-34-6	1-2
Crystalline Silica, Quartz	14808-60-7	0-5
Chromium	7440-47-3	0-5
Diantimony Trisulfide	1345-04-6	0-2
Nickel	7440-02-0	0-2
Titanium Dioxide	13463-67-7	0.1-1

The exact concentration is being withheld as a trade secret.

Refer to Section 8 for occupational exposure limits.

### 4. First Aid Measures

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

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

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

**Ingestion:** Not an anticipated route of exposure. If swallowed, drink 1 or 2 glasses of water to dilute. Never give anything by mouth to an unconscious or convulsing person. Get medical attention.

**Most important symptoms/effects, acute and delayed:** Dust may cause mechanical eye and skin irritation and respiratory irritation. May cause skin sensitization. Prolonged inhalation of dusts or fumes may cause lung damage. Prolonged overexposure to respirable crystalline silica may cause lung disease (silicosis). This product contains crystalline silica, quartz, titanium dioxide, diantimony trioxide and nickel which may cause cancer based on animal studies. Risk of cancer depends on duration and level of exposure.

**Indication of immediate medical attention and special treatment:** No immediate medical treatment is required.

### 5: FIRE-FIGHTING MEASURES

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

**Special protective equipment and precautions for fire-fighters:** Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires involving chemicals.

**Specific hazards arising from the chemical:** Combustion products from organic resins may include carbon monoxide, carbon dioxide, nitrogen oxides, sulfur dioxide, aldehydes, phenols, cyanide, ammonia and various hydrocarbons.

### 6: Accidental Release Measures

**Personal precautions, protective equipment, and emergency procedures:** Wear appropriate protective clothing and equipment to avoid eye and skin contact.

**Environmental hazards:** Avoid release to the environment. Report spill as required by local and federal regulations.

**Methods and materials for containment and cleaning up:** Pick up large pieces. Use HEPA vacuum to clean up any dust. 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. Refer to Section 13 for disposal considerations.

## 7. Handling and Storage

**Precautions for safe handling:** Avoid generating dust. Do not breathe dust. Do not grind, sand, drill or machine these parts. 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.

**Conditions for safe storage, including any incompatibilities:** Keep product dry.

## 8. Exposure Controls / Personal Protection

### Exposure guidelines:

Hazardous Components	Exposure Limits
Non-hazardous ingredients	None Established
Barium Sulfate	5 mg/m <sup>3</sup> TWA ACGIH TLV (inhalable) 15 mg/m <sup>3</sup> TWA OSHA PEL (total dust), 5 mg/m <sup>3</sup> TWA (respirable fraction)
Synthetic Graphite	2 mg/m <sup>3</sup> ACGIH TLC (respirable) 15 mg/m <sup>3</sup> TWA OSHA PEL (total dust), 5 mg/m <sup>3</sup> TWA (respirable fraction)
Magnesium Oxide	10 mg/m <sup>3</sup> TWA ACGIH TLV (inhalable) 15 mg/m <sup>3</sup> TWA OSHA PEL (total particulate)
Natural Graphite	2 mg/m <sup>3</sup> ACGIH TLC (respirable) 15 mppcf TWA OSHA PEL
Iron Oxide	5 mg/m <sup>3</sup> ACGIH TLC (respirable) 10 mg/m <sup>3</sup> TWA OSHA PEL (fume)
Cellulose	10 mg/m <sup>3</sup> TWA ACGIH TLV 15 mg/m <sup>3</sup> TWA OSHA PEL (total dust), 5 mg/m <sup>3</sup> TWA (respirable fraction)
Crystalline Silica, Quartz	10 mg/m <sup>3</sup> TWA OSHA PEL (Respirable fraction) % SiO <sub>2</sub> + 2 30 mg/m <sup>3</sup> TWA OSHA PEL (Total dust) % SiO <sub>2</sub> + 2 0.025 mg/m <sup>3</sup> TWA ACGIH TLV (Respirable)

Chromium (as Chromium metal)	0.5 mg/m <sup>3</sup> TWA ACGIH TLV 1 mg/m <sup>3</sup> TWA OSHA PEL
Diantimony Trisulfide (as Antimony compounds, as Sb)	0.5 mg/m <sup>3</sup> TWA ACGIH TLV 0.5 mg/m <sup>3</sup> TWA OSHA PEL
Nickel (elemental)	1.5 mg/m <sup>3</sup> TWA ACGIH TLV (inhalable) 1 mg/m <sup>3</sup> TWA OSHA PEL
Titanium Dioxide	10 mg/m <sup>3</sup> TWA ACGIH TLV 15 mg/m <sup>3</sup> TWA OSHA PEL (total dust)

**Appropriate engineering controls:** Use with adequate local exhaust ventilation and dust collection as necessary to maintain the concentration of airborne dust below the exposure limits.

**Individual protection measures, such as personal protective equipment (PPE)**

**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.

**Skin Protection:** Gloves recommended for handling brake parts.

**Eye Protection:** Safety glasses recommended.

**Other:** Wear protective clothing as needed to avoid skin contact.

## 9. Physical and Chemical Properties

**Appearance (physical state, color, etc.):** Metallic parts with gray friction material.

**Odor:** No odor

<b>Odor threshold:</b> Not applicable	<b>pH:</b> Not applicable
<b>Melting point/freezing point:</b> Not applicable	<b>Boiling point:</b> Not applicable
<b>Flash point:</b> Not applicable	<b>Evaporation rate:</b> Not applicable
<b>Flammability (solid, gas):</b> Not flammable	
<b>Flammable limits: LEL:</b> Not applicable	<b>UEL:</b> Not applicable
<b>Vapor pressure:</b> Not applicable	<b>Vapor density:</b>
<b>Relative density:</b> 2.2 – 3.55 g/cc	<b>Solubility(ies):</b> Insoluble
<b>Partition coefficient: n-octanol/water:</b> Not applicable	<b>Auto-ignition temperature:</b> Not applicable
<b>Decomposition temperature:</b> Not applicable	<b>Viscosity:</b> Not applicable

## 10. Stability and Reactivity

**Reactivity:** Not expected to be reactive under normal conditions of use.

**Chemical stability:** Stable.

**Possibility of hazardous reactions:** None known.

**Conditions to avoid:** None known.

**Incompatible materials:** None known.

**Hazardous decomposition products:** Combustion products from organic resins may include carbon monoxide, carbon dioxide, nitrogen oxides, sulfur dioxide, aldehydes, phenols, cyanide, ammonia and various hydrocarbons.

## 11. Toxicological Information

**Eye Contact:** Dust from product may cause abrasive irritation and conjunctivitis.

**Skin Contact:** Prolonged contact with dust from product may cause irritation, dermatitis and sensitization.

**Inhalation:** Inhalation of dust may cause irritation to the nose, throat and upper respiratory tract with coughing and shortness of breath.

**Ingestion:** Not a normal route of exposure. Swallowing large amounts of dust may cause overexposure to antimony with symptoms including gastrointestinal irritation, sores in the mouth and nose, headache, dizziness, weight loss and acute congestion of the heart, liver and kidneys.

**Chronic Health Effects:** Inhalation of excessive concentrations of any dust, including dust from this material, may cause lung injury. Prolonged overexposure to respirable crystalline silica may cause lung disease (silicosis) and increase the risk of lung cancer. Overexposure to antimony may cause degenerative changes of the liver and kidneys. Prolonged inhalation of nickel dust or fumes may cause perforation of the nasal septum and lung damage.

**Carcinogenicity:** Nickel compounds are classified by IARC as known human carcinogens (Group 1) and by NTP as known human carcinogens. Metallic nickel is classified by IARC as possibly carcinogenic to humans (Group 2B) and by NTP as reasonably anticipated to be a carcinogen. Crystalline silica quartz is listed as "Carcinogenic to Humans" (Group 1) by IARC and "Known to be a Human Carcinogen" by NTP. Titanium dioxide is listed by IARC as a group 2B carcinogen (possible human carcinogen). Diantimony Trisulfide is classified as a carcinogen category 2 by the EU CLP. None of the other components of this product are listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH or OSHA.

**Acute Toxicity Values: No acute toxicity data for the product.**

Non-hazardous ingredients: No data available

Barium Sulfate: Oral rat LD50: 307000 mg/kg

Synthetic Graphite: Oral rat LD50 > 2000 mg/kg, inhalation rat LC50 > 2 mg/L

Magnesium Oxide: No data available

Natural Graphite: Oral rat LD50 > 2000 mg/kg, inhalation rat LC50 > 2 mg/L

Iron Oxide: Oral rat LD50 > 10000 mg/kg

Cellulose: No data available

Diantimony Trisulfide: Oral rat LD50 > 2000 mg/kg, inhalation rat LC50 > 5.04 mg/L, dermal rat LD50 > 2000 mg/kg

Crystalline Silica, Quartz: Oral rat LD50 - >22,500 mg/kg

Chromium: Oral rat LD50 > 5000 mg/kg, inhalation rat LC50 > 5.41 mg/L

Nickel: Oral rat LD50 > 9000 mg/kg

Titanium Dioxide: Oral rat LD50 - >20000 mg/kg; Skin hamster LD50 - >10000 mg/kg

## 12. Ecological Information

**Ecotoxicity: No toxicity data for the product.**

Barium Sulfate: Danio rerio LC50 >3.5 mg/L/96hr

Synthetic Graphite: Danio rerio LC50 > 100 mg/L/96hr

Natural Graphite: Danio rerio LC50 > 100 mg/L/96hr

Iron Oxide: Danio rerio LC0 ≥ 50000 mg/L/96hr

Diantimony Trisulfide: Pargus major LC50: 6.9 mg/L/96hr

Crystalline Silica, Quartz: LC50 Carp - >10,000 mg/L/72hr

Nickel: 96 hr LC50 Oncorhynchus mykiss 15.3 mg/L

This product is not anticipated to have an adverse effect on the environment.

**Persistence and degradability:** Biodegradation is not applicable to inorganic substances.

**Bioaccumulative potential:** Bioaccumulation is not expected.

**Mobility in soil:** No data available.

**Other adverse effects:** No data available.

## 13. DISPOSAL CONSIDERATIONS

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

#### 14. Transport Information

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
<b>DOT</b>	None	Not Regulated	None	None	Not applicable
<b>TDG</b>	None	Not Regulated	None	None	Not applicable
<b>IMDG</b>	None	Not Regulated	None	None	Not applicable
<b>IATA</b>	None	Not Regulated	None	None	Not applicable

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not applicable – product is transported only in packaged form.

**Special precautions:** None known

#### 15. 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. These products are manufactured with chemicals listed on the TSCA inventory.

##### **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:**

Name	CAS	%
Chromium	7440-47-3	0-5
Nickel	7440-02-0	0-2

##### INTERNATIONAL REGULATIONS:

**Canadian Environmental Protection Act:** Manufactured articles are exempt from notification requirements under CEPA.

#### 16. Other Information

**NFPA Ratings:** Health: 1 Flammability: 0 Instability: 0

**HMIS Ratings:** Health: 1\* Flammability: 0 Physical Hazard: 0

\*Chronic Health Hazard

**SDS Revision History:** Updated all sections to comply with GHS

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