



MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: ABEX6263, ADU67, APC709, APC710, APC711, APC709,
 APC710, APC711, APG301, APS639, APS640, APS641, APS639,
 APS640, APS641, AQP201, AZG60, BBS33, FA5007, FM2277,
 MBF43, MCF57, MSF50, MTF47, SST234, TQ122, WAGZD11,
 WMF21,

Product No.: 289

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

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

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

Intended Use: Friction Material

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

2 HAZARDS IDENTIFICATION

Emergency Overview

Physical State: Solid

Color: Gray-brown

Odor: Resin

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 from the product by operations such as overheating, burning, machining, abrading, or riveting. **WARNING!** Harmful if inhaled. Causes skin, eye and respiratory tract irritation.

Potential Health Effects

Inhalation: The ingredients may be released from the product by operations such as overheating, burning, machining, abrading, or riveting. Harmful if inhaled. Causes respiratory tract irritation.

Eye Contact: The ingredients may be released 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 from the product by operations such as overheating, burning, machining, abrading, or riveting. Causes skin irritation.

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 from the product by operations such as overheating, burning, machining, abrading, or riveting. May cause lung damage.

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

OSHA Regulatory Status: This product is hazardous according to OSHA 29CFR 1910.1200.

Environment: The product is not expected to be hazardous to the environment.

3 COMPOSITION / INFORMATION ON INGREDIENTS

General Information: The ingredients may be released from the product by operations such as overheating, burning, machining, abrading, or riveting.

Chemical Name	CAS-No.	Concentration*
Friction dust	68647-81-4	> 1%
Iron pyrite	1309-36-0	> 1%
Phenolic resin	9003-35-4	> 1%
Rubber	9003-18-3	> 1%
†Antimony sulphide	1345-04-6	> 1%
†Aramid fiber	26125-61-1	> 1%
†Barytes	7727-43-7	> 1%
†Graphite	7782-42-5	> 1%
†Hydrated lime	1305-62-0	> 1%
†Magnesium oxide	1309-48-4	> 1%
†Mica	12001-26-2	> 1%
†Mineral Fiber	287922-11-6	> 1%
†Pet coke	7440-44-0	> 1%

* All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

† This chemical is hazardous according to OSHA criteria.

4 FIRST AID MEASURES

Inhalation: Move injured person into fresh air and keep person calm under observation. Get medical attention if any discomfort continues.

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: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention.

Ingestion: Rinse mouth thoroughly. Get medical attention if any discomfort occurs.

5	FIRE-FIGHTING MEASURES
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Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder or water fog.

Unsuitable Extinguishing Media: None.

Special Fire Fighting Procedures: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Unusual Fire & Explosion Hazards: None known.

Hazardous Combustion Products: Carbon Oxides, Nitrogen Oxides, Sulfur Oxides

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

6	ACCIDENTAL RELEASE MEASURES
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Personal Precautions: Avoid generation and spreading of dust. Avoid contact with spilled material. Wear appropriate personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.

Spill Cleanup Methods: Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container.

Environmental Precautions: Avoid 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
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Handling: Avoid dust formation. Avoid contact with skin and eyes. Wear suitable protective clothing. Use only with adequate ventilation. Observe good industrial hygiene practices.

Storage: Store in a cool, dry place. Store in tightly closed original container. Avoid conditions which create dust. Store away from incompatible materials.

8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Antimony sulphide	US. ACGIH TLV	TWA	0.5 mg/m ³	as Sb
Antimony sulphide	US. NIOSH Guide	IDLH	50 mg/m ³	
Antimony sulphide	US. OSHA Z-1 PEL	TWA	0.5 mg/m ³	as Sb
Barytes	US. ACGIH TLV	TWA	10 mg/m ³	
Barytes (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m ³	
Graphite (Respirable fraction.)	US. ACGIH TLV	TWA	2 mg/m ³	

Graphite (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	
Graphite (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m ³	
Hydrated lime	US. ACGIH TLV	TWA	5 mg/m ³	
Hydrated lime (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 (Total particulate.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	
Mica (Respirable fraction.)	US. ACGIH TLV	TWA	3 mg/m ³	
Mica	US. NIOSH Guide	IDLH	1500 mg/m ³	
Mica	US. OSHA Z-3 PEL	TWA	20 Mppcf	
Pet coke (Respirable fraction.)	US. ACGIH TLV	TWA	2 mg/m ³	
Pet coke (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m ³	
Pet coke	US. OSHA Z-3 PEL	TWA	15 Mppcf	

Engineering Controls: Exposure limits apply to material in dry form where dust may become airborne. Adequate ventilation should be provided so that exposure limits are not exceeded. The risk of inhalation of dust must be minimized as much as possible. This product may be capable of generating 0.1 ppm or greater formaldehyde vapors under certain use conditions. According to OSHA 29 CFR 1910.1048, formaldehyde vapors may be considered hazardous if workplace airborne concentrations exceed 0.1 ppm.

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. 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: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

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

Hand Protection: Wear chemical-resistant gloves. Contact glove manufacturer for specific information. Nitrile gloves are recommended.

Skin Protection: Risk of contact: Use skin protection.

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.

9	PHYSICAL AND CHEMICAL PROPERTIES
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Color: Gray-brown

Odor: Resin

Odor Threshold: No data available.

Physical State: Solid

pH: 5 - 13

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 (Solid): 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 - 4 (@ 20 °C (68 °F))
Solubility in Water: Insoluble
Solubility (Other): No data available.
Partition Coefficient (n-Octanol/water): No data available.
Autoignition Temperature: No data available.
Decomposition Temperature: No data available.
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: Strong oxidizing agents.

Hazardous Decomposition Products:

At Elevated Temperatures:	Carbon Oxides, Nitrogen Oxides, Sulfur Oxides
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Possibility of Hazardous Reactions: No data available.

11	TOXICOLOGICAL INFORMATION
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Specified Substance(s)

Acute Toxicity:

Chemical Name	Test Results
Antimony sulphide	Dermal LD50 (Rat): 2001 mg/kg
Antimony sulphide	Inhalation LC50 (4 hour(s), Rat): 5.04 mg/l
Antimony sulphide	Oral LD50 (Rat): 2001 mg/kg
Hydrated lime	Oral LD50 (Rat): 7340 mg/kg
Phenolic resin	Oral LD50 (Rat): 5 g/kg

Listed Carcinogens:

Chemical Name	IARC	NTP	OSHA	ACGIH
Antimony sulphide	3	Not Listed	Not Listed	Not Listed
Magnesium oxide	Not Listed	Not Listed	Not Listed	A4
Aramid fiber	3	Not Listed	Not Listed	Not Listed

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 from the product by operations such as overheating, burning, machining, abrading, or riveting. Dusts may irritate the respiratory tract, skin and eyes.**Chronic Toxicity:** The ingredients may be released from the product by operations such as overheating, burning, machining, abrading, or riveting. May cause lung damage based on animal data.**12 ECOLOGICAL INFORMATION****Ecotoxicity:** No data available.**Mobility:** No data available.**Persistence and Degradability:** No data available.**Bioaccumulation Potential:** No data available.**13 DISPOSAL CONSIDERATIONS****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****DOT** Not regulated.**IATA** Not regulated.**IMDG** Not regulated.**15 REGULATORY INFORMATION****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):

Chemical Name	CAS-No.	Reporting threshold for other users	Reporting threshold for manufacturing and processing
Antimony sulphide	1345-04-6	10000 lbs	25000 lbs

For reporting purposes: the De Minimis Concentration for a toxic chemical in a mixture is 0.1% for carcinogens as defined in 29 CFR 1910.1200(d)(4) or 1% for others.

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):

Massachusetts Right-To-Know List: Barytes; Graphite; Hydrated lime; Magnesium oxide; Mica; Pet coke

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

Minnesota Hazardous Substances List: Antimony sulphide; Barytes; Graphite; Hydrated lime; Magnesium oxide; Mica; Pet coke

New Jersey Right-To-Know List: Antimony sulphide; Barytes; Hydrated lime; Magnesium oxide; Mica

Pennsylvania Right-To-Know List: Barytes; Graphite; Hydrated lime; Magnesium oxide; Mica; Pet coke

Rhode Island Right-To-Know List: Antimony sulphide; Graphite; Hydrated lime; Magnesium oxide; Mica; Pet coke

16	OTHER INFORMATION
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HAZARD RATINGS

	Health Hazard	Fire Hazard	Instability	Special Hazard
NFPA	2	1	0	--

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	2*	1	0	J

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe *- Chronic Health Effect

Personal Protection codes: J - Goggles, Gloves, Apron, Dust, Vapor Respirator

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

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Disclaimer: The information provided on this data sheet was abstracted from supplier material safety data sheets and standard references in occupational health and toxicology. Federal-Mogul makes no representation or warranty with respect to the information obtained from such references. The information is however, as of the date provided, true and accurate to the best of Federal-Mogul's knowledge, and should be used to make an independent determination of the methods to safeguard workers and the environment.