



# MATERIAL SAFETY DATA SHEET

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** FA509, FA508, TQ124, ABEX6270, FM2284, QS 519, QS 529, QS 539, QS 549, QS 559, QS 569, QS 579, QS 589, QS 599, APC 812, APC 813, APC 820, APC 821, APC 830, APC 850, APC 870, APC 880, APS 712, APS 720, APS 721, APS 750, APS 770, SST 236, SST 237, SST 240, SST 241, SST 270, SST 290, SST 300.

**Product No.:** 307

**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:** Disc Brake Pad

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

## 2 HAZARDS IDENTIFICATION

### Emergency Overview

**Physical State:** Solid (brake pad)

**Color:** Gray

**Odor:** Resin

### WARNING!

Dust can be created by the machining of finished products. Harmful if inhaled. Causes skin, eye and respiratory tract irritation.

### Potential Health Effects

**Inhalation:** The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Harmful if inhaled. Dust irritating to respiratory tract. Inhalation of powder or fumes may cause metal fume fever. Inhalation may lead to deposition in lung and in sufficient quantities produce baritosis.

**Eye Contact:** Dust in the eyes will cause irritation. Exposed individuals may experience eye tearing, redness, and discomfort.

**Skin Contact:** The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Dust on the skin will cause irritation.

**Ingestion:** The ingredients may be released as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. May cause discomfort if swallowed.

**Chronic Health 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. May cause damage to the liver and kidneys.

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

**Potential Physical / Chemical Effects:** This product is not flammable or combustible.

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

**Environment:** The product contains a substance which is very toxic to aquatic organisms.

<b>3</b>	<b>COMPOSITION / INFORMATION ON INGREDIENTS</b>
----------	---

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

Chemical Name	CAS-No.	Concentration*
†1,4-Benzenedicarbonyl dichloride, polymer with 1,4-benzenediamine	26125-61-1	> 1%
†Antimony sulphide	1345-04-6	> 1%
†Barium sulphate	7727-43-7	> 1%
†Calcium hydroxide	1305-62-0	> 1%
†Calcium silicate	1344-95-2	> 1%
†Copper	7440-50-8	> 1%
†Dipotassium titanate	12056-51-8	> 1%
†Graphite	7782-42-5	> 1%
†Mica	12001-26-2	> 1%
†Zirconium silicate	14940-68-2	> 1%

† This chemical is hazardous according to OSHA/WHMIS criteria.

<b>4</b>	<b>FIRST AID MEASURES</b>
----------	---------------------------

**Inhalation:** Move injured person into fresh air and keep person calm under observation. If necessary, seek hospital and take along these instructions.

**Eye Contact:** Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention promptly if symptoms occur after washing.

**Skin Contact:** Remove contaminated clothing immediately and wash skin with soap and water. 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.

<b>5</b>	<b>FIRE-FIGHTING MEASURES</b>
----------	-------------------------------

**Extinguishing Media:** This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable Extinguishing Media:** None.

**Special Fire Fighting Procedures:** Use standard firefighting procedures and consider the hazards of other involved materials.

**Unusual Fire & Explosion Hazards:** The product is non-combustible. If heated, toxic vapors may be formed.

**Hazardous Combustion Products:** Calcium oxides, Carbon Dioxide, Carbon Monoxide, Metallic fumes, Sulfur Oxides

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

**Flammability Class:** Dust: NFPA Rating Fire = 1. Materials that must be preheated before ignition can occur.

<b>6 ACCIDENTAL RELEASE MEASURES</b>
--------------------------------------

**Personal Precautions:** 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 MSDS for Personal Protective Equipment.

**Spill Cleanup Methods:** 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 MSDS.

**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.

<b>7 HANDLING AND STORAGE</b>
-------------------------------

**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 MSDS for Personal Protective Equipment. Observe good industrial hygiene practices.

**Storage:** Store in tightly closed original container. Avoid conditions which create dust. Protect against direct sunlight. Store away from incompatible materials.

<b>8 EXPOSURE CONTROLS / PERSONAL PROTECTION</b>
--

**Exposure Limits:**

Chemical Name	Source	Type	Exposure Limits	Notes
Antimony sulphide	CA. Alberta OELs	TWA	0.5 mg/m <sup>3</sup>	as Sb
Antimony sulphide	CA. British Columbia	TWA	0.5 mg/m <sup>3</sup>	as Sb

	OELs			
Antimony sulphide	CA. Ontario OELs	TWA	0.5 mg/m <sup>3</sup>	as Sb
Antimony sulphide	MEX. OELs	TWA	0.5 mg/m <sup>3</sup>	as Sb
Antimony sulphide	US. ACGIH TLV	TWA	0.5 mg/m <sup>3</sup>	as Sb
Antimony sulphide	US. NIOSH Guide	IDLH	50 mg/m <sup>3</sup>	
Antimony sulphide	US. OSHA Z-1 PEL	TWA	0.5 mg/m <sup>3</sup>	as Sb
Barium sulphate	CA. Alberta OELs	TWA	10 mg/m <sup>3</sup>	
Barium sulphate (Respirable fraction.)	CA. British Columbia OELs	TWA	3 mg/m <sup>3</sup>	
Barium sulphate (Total dust.)	CA. British Columbia OELs	TWA	10 mg/m <sup>3</sup>	
Barium sulphate (Total dust.)	CA. Ontario OELs	TWA	10 mg/m <sup>3</sup>	
Barium sulphate	MEX. OELs	TWA	0.5 mg/m <sup>3</sup>	as Ba
Barium sulphate	US. ACGIH TLV	TWA	10 mg/m <sup>3</sup>	
Barium sulphate (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m <sup>3</sup>	
Barium sulphate (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m <sup>3</sup>	
Calcium hydroxide	CA. Alberta OELs	TWA	5 mg/m <sup>3</sup>	
Calcium hydroxide	CA. British Columbia OELs	TWA	5 mg/m <sup>3</sup>	
Calcium hydroxide	CA. Ontario OELs	TWA	5 mg/m <sup>3</sup>	
Calcium hydroxide	MEX. OELs	TWA	5 mg/m <sup>3</sup>	
Calcium hydroxide	US. ACGIH TLV	TWA	5 mg/m <sup>3</sup>	
Calcium hydroxide (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m <sup>3</sup>	
Calcium silicate	CA. Alberta OELs	TWA	10 mg/m <sup>3</sup>	
Calcium silicate (Total dust.)	CA. British Columbia OELs	TWA	10 mg/m <sup>3</sup>	
Calcium silicate (Respirable fraction.)	CA. British Columbia OELs	TWA	3 mg/m <sup>3</sup>	
Calcium silicate (Total dust.)	CA. Ontario OELs	TWA	10 mg/m <sup>3</sup>	
Calcium silicate	MEX. OELs	TWA	10 mg/m <sup>3</sup>	
Calcium silicate	US. ACGIH TLV	TWA	10 mg/m <sup>3</sup>	
Calcium silicate	US. NIOSH Guide	IDLH	-	
Calcium silicate (Total dust.)	US. OSHA Z-1 PEL	TWA	10 mg/m <sup>3</sup>	
Calcium silicate (Respirable fraction.)	US. OSHA Z-1 PEL	TWA	5 mg/m <sup>3</sup>	
Copper (Fume.)	CA. Alberta OELs	TWA	0.2 mg/m <sup>3</sup>	
Copper (Dust and mist.)	CA. British Columbia OELs	TWA	1 mg/m <sup>3</sup>	as Cu
Copper (Fume.)	CA. British Columbia OELs	TWA	0.2 mg/m <sup>3</sup>	as Cu
Copper (Fume.)	CA. Ontario OELs	TWA	0.2 mg/m <sup>3</sup>	as Cu
Copper (Fume.)	MEX. OELs	STEL	2 mg/m <sup>3</sup>	as Cu
Copper (Dust and mist.)	MEX. OELs	STEL	2 mg/m <sup>3</sup>	as Cu
Copper (Fume.)	MEX. OELs	TWA	0.2 mg/m <sup>3</sup>	as Cu
Copper (Fume.)	US. ACGIH TLV	TWA	0.2 mg/m <sup>3</sup>	
Copper	US. NIOSH Guide	IDLH	100 mg/m <sup>3</sup>	
Copper (Fume.)	US. OSHA Z-1 PEL	TWA	0.1 mg/m <sup>3</sup>	as Cu
Graphite (Respirable particles.)	CA. Alberta OELs	TWA	2 mg/m <sup>3</sup>	respirable
Graphite (Respirable.)	CA. British Columbia OELs	TWA	2 mg/m <sup>3</sup>	
Graphite (Respirable.)	CA. Ontario OELs	TWA	2 mg/m <sup>3</sup>	
Graphite (Respirable dust.)	CA. Quebec OELs	TWA	2 mg/m <sup>3</sup>	

Graphite	MEX. OELs	TWA	2 mg/m <sup>3</sup>	
Graphite (Respirable fraction.)	US. ACGIH TLV	TWA	2 mg/m <sup>3</sup>	
Graphite	US. NIOSH Guide	IDLH	1250 mg/m <sup>3</sup>	
Graphite	US. OSHA Z-3 PEL	TWA	15 Mppcf	
Mica (Respirable.)	CA. British Columbia OELs	TWA	3 mg/m <sup>3</sup>	
Mica (Respirable.)	CA. Ontario OELs	TWA	3 mg/m <sup>3</sup>	
Mica	MEX. OELs	TWA	3 mg/m <sup>3</sup>	
Mica (Respirable fraction.)	US. ACGIH TLV	TWA	3 mg/m <sup>3</sup>	
Mica	US. NIOSH Guide	IDLH	1500 mg/m <sup>3</sup>	
Mica	US. OSHA Z-3 PEL	TWA	20 Mppcf	
Zirconium silicate	CA. Alberta OELs	STEL	10 mg/m <sup>3</sup>	as Zr
Zirconium silicate	CA. Alberta OELs	TWA	5 mg/m <sup>3</sup>	as Zr
Zirconium silicate	CA. British Columbia OELs	STEL	10 mg/m <sup>3</sup>	as Zr
Zirconium silicate	CA. British Columbia OELs	TWA	5 mg/m <sup>3</sup>	as Zr
Zirconium silicate	CA. Ontario OELs	TWA	5 mg/m <sup>3</sup>	as Zr
Zirconium silicate	CA. Ontario OELs	STEL	10 mg/m <sup>3</sup>	as Zr
Zirconium silicate	MEX. OELs	STEL	10 mg/m <sup>3</sup>	as Zr
Zirconium silicate	MEX. OELs	TWA	5 mg/m <sup>3</sup>	as Zr
Zirconium silicate	US. ACGIH TLV	TWA	5 mg/m <sup>3</sup>	as Zr
Zirconium silicate	US. ACGIH TLV	STEL	10 mg/m <sup>3</sup>	as Zr
Zirconium silicate	US. NIOSH Guide	IDLH	50 mg/m <sup>3</sup>	
Zirconium silicate	US. OSHA Z-1 PEL	TWA	5 mg/m <sup>3</sup>	as Zr

**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.

**Respiratory Protection:** During dust-raising work: Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

**Eye Protection:** Wear approved safety goggles.

**Hand Protection:** Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

**Skin Protection:** Wear suitable protective clothing.

**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.

<b>9</b>	<b>PHYSICAL AND CHEMICAL PROPERTIES</b>
----------	---

**Color:** Gray

**Odor:** Resin

**Odor Threshold:** No data available.

**Physical State:** Solid (brake pad)

**pH:** Not applicable  
**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 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:** 2.2 - 3.2 (20°C)  
**Solubility in Water:** No data available.  
**Solubility (Other):** No data available.  
**Partition Coefficient (n-Octanol/water):** No data available.  
**Autoignition Temperature:** No data available.  
**Decomposition Temperature:** No data available.  
**Volatile Organic Compounds (VOC):** Not applicable.  
**Viscosity:** Not applicable.

<b>10</b>	<b>STABILITY AND REACTIVITY</b>
-----------	---------------------------------

**Stability:** Material is stable under normal conditions.

**Conditions to Avoid:** None known.

**Incompatible Materials:** Strong oxidizing agents. Acids.

**Hazardous Decomposition Products:**

At Elevated Temperatures:	Calcium oxides, Carbon Dioxide, Carbon Monoxide, Metallic fumes, Sulfur Oxides
---------------------------	--

**Possibility of Hazardous Reactions:** Will not occur.

<b>11</b>	<b>TOXICOLOGICAL INFORMATION</b>
-----------	----------------------------------

**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
Calcium hydroxide	Oral LD50 (Rat): 7340 mg/kg
Dipotassium titanate	Inhalation LC50 (Rat): >2000 mg/m <sup>3</sup>
Dipotassium titanate	Oral LD50 (Rat): >2000 mg/kg

**Listed Carcinogens:**

Chemical Name	IARC	NTP	OSHA	ACGIH
1,4-Benzenedicarbonyl dichloride, polymer with 1,4-benzenediamine	3	Not Listed	Not Listed	Not Listed
Zirconium silicate	Not Listed	Not Listed	Not Listed	A4

Antimony sulphide	3	Not Listed	Not Listed	Not Listed
Calcium silicate	Not Listed	Not Listed	Not Listed	A4

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 as general dust from the product by operations such as overheating, burning, machining, abrading, or riveting. Harmful if inhaled. Causes skin, eye and respiratory tract irritation. Inhalation of powder or fumes may cause metal fume fever. Inhalation may lead to deposition in lung and in sufficient quantities produce baritosis.

**Chronic Toxicity:** 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. May cause damage to the liver and kidneys.

## 12 ECOLOGICAL INFORMATION

**Ecotoxicity:** The product contains a substance which is very toxic to aquatic organisms.

#### **Specified Substance(s)**

Chemical Name	Test
Calcium hydroxide	LC50 (96 hour(s), Fish): 33.9 mg/l
Dipotassium titanate	LC50 (96 hour(s), Fish): 0.22 mg/l

**Mobility:** The product is insoluble in water and will sediment in water systems.

**Persistence and Degradability:** The product contains inorganic compounds which are not biodegradable.

**Bioaccumulation Potential:** No data available.

**Other Adverse Effects:** 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.

<b>14</b>	<b>TRANSPORT INFORMATION</b>
-----------	------------------------------

**DOT** Not regulated.

**TDG** Not regulated.

**IATA** Not regulated.

**IMDG** Not regulated.

<b>15</b>	<b>REGULATORY INFORMATION</b>
-----------	-------------------------------

**Canadian Controlled Products Regulations:** This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

**WHMIS Classification:** The disc brake pads would not be controlled under WHMIS.

**Mexican Dangerous Statement:** This product is dangerous according to Mexican regulations.

**US Regulations**

**CERCLA Hazardous Substance List (40 CFR 302.4):**

Chemical Name	RQ
Copper	5000 lbs
Barium sulphate	1000 lbs
Antimony sulphide	-

- : No reportable quantity.

**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
Copper	7440-50-8	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):**  
Dipotassium titanate

**TSCA Section 5(e) PMN-Substance Consent Orders:** Dipotassium titanate

**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):** Not regulated.

**Massachusetts Right-To-Know List:** Barium sulphate; Calcium hydroxide; Calcium silicate; Copper; Graphite; Mica

**Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)):** Copper

**Minnesota Hazardous Substances List:** Antimony sulphide; Barium sulphate; Calcium hydroxide; Calcium silicate; Copper; Graphite; Mica; Zirconium silicate

**New Jersey Right-To-Know List:** Antimony sulphide; Barium sulphate; Calcium hydroxide; Copper; Mica

**Pennsylvania Right-To-Know List:** Barium sulphate; Calcium hydroxide; Calcium silicate; Copper; Graphite; Mica

**Rhode Island Right-To-Know List:** Antimony sulphide; Calcium hydroxide; Calcium silicate; Copper; Graphite; Mica; Zirconium silicate

<b>16</b>	<b>OTHER INFORMATION</b>
-----------	--------------------------

**HAZARD RATINGS**

	Health Hazard	Fire Hazard	Instability	Special Hazard
<b>NFPA</b>	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
<b>HMIS</b>	2*	1	0	E

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

Personal Protection codes: E - Safety Glasses, Gloves, Dust Respirator

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

**This MSDS contains revisions in the following section(s):** 7, 15, 16.

**Issued by:** Federal-Mogul Corporation

**Issue Date:** 01-Dec-2011

**Supersedes Date:** 14-Apr-2011

**SDS No.:** SN3018

**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.