



MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: FA5004

Product No.: 248

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 eye and respiratory tract irritation.

Potential Health Effects

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

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. Dust may irritate skin.

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 damage to the liver and kidneys. May cause lung damage.

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

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.

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*
†Barytes	7727-43-7	> 1%
†Zirconium oxide	1314-23-4	> 1%
†Copper	7440-50-8	< 10%
†Dipotassium titanate	12056-51-8	> 1%
†Graphite	7782-42-5	> 1%
†Mica powder	12001-26-2	> 1%
†Powdered novolac resin	9003-35-4	> 1%
†Antimony trisulphide	1345-04-6	> 1%
†Aramid fiber	26125-61-1	> 1%
†Titanium dioxide (in the titanate)	13463-67-7	< 1%

* All concentrations are 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: Wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.

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

5 FIRE-FIGHTING MEASURES

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, Hydrocarbons, 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

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. Collect and dispose of spillage as indicated in section 13 of the MSDS.

Environmental Precautions: Avoid discharge into drains, water courses or onto the ground.

7 HANDLING AND STORAGE

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

Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Antimony trisulphide	US. ACGIH TLV	TWA	0.5 mg/m ³	as Sb
Antimony trisulphide	US. NIOSH Guide	IDLH	50 mg/m ³	
Antimony trisulphide	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	
Copper (Fume.)	US. ACGIH TLV	TWA	0.2 mg/m ³	
Copper	US. NIOSH Guide	IDLH	100 mg/m ³	
Copper (Fume.)	US. OSHA Z-1 PEL	TWA	0.1 mg/m ³	as Cu
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	
Mica powder (Respirable fraction.)	US. ACGIH TLV	TWA	3 mg/m ³	
Mica powder	US. NIOSH Guide	IDLH	1500 mg/m ³	
Mica powder	US. OSHA Z-3 PEL	TWA	20 Mppcf	
Titanium dioxide (in the titanate)	US. ACGIH TLV	TWA	10 mg/m ³	

Titanium dioxide (in the titanate)	US. NIOSH Guide	IDLH	5000 mg/m ³	
Titanium dioxide (in the titanate) (Total dust.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	
Zirconium oxide	US. ACGIH TLV	TWA	5 mg/m ³	as Zr
Zirconium oxide	US. ACGIH TLV	STEL	10 mg/m ³	as Zr
Zirconium oxide	US. NIOSH Guide	IDLH	50 mg/m ³	
Zirconium oxide	US. OSHA Z-1 PEL	TWA	5 mg/m ³	as Zr

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. Observe occupational exposure limits and minimize the risk of inhalation of dust.

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: Risk of contact: Wear protective gloves.

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.

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PHYSICAL AND CHEMICAL PROPERTIES

Color: Gray-brown

Odor: Resin

Odor Threshold: No data available.

Physical State: Solid

pH: No data available

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: No data available.

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.
Viscosity: Not applicable.

10	STABILITY AND REACTIVITY
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Stability: Stable under normal temperature conditions.

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 trisulphide	Dermal LD50 (Rat): 2001 mg/kg
Antimony trisulphide	Oral LD50 (Rat): 2001 mg/kg
Dipotassium titanate	Inhalation LC50 (Rat): >2000 mg/m ³
Dipotassium titanate	Oral LD50 (Rat): >2000 mg/kg
Powdered novolac resin	Oral LD50 (Rat): 5 g/kg

Listed Carcinogens:

Chemical Name	IARC	NTP	OSHA	ACGIH
Zirconium oxide	Not Listed	Not Listed	Not Listed	A4
Barytes	Not Listed	Not Listed	Not Listed	A4
Antimony trisulphide	3	Not Listed	Not Listed	Not Listed
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 damage to the liver and kidneys. May cause lung damage based on animal data.

12	ECOLOGICAL INFORMATION
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Ecotoxicity: The product contains a substance which is very toxic to aquatic organisms.

Specified Substance(s)

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

Mobility: No data available.

Persistence and Degradability: No data available.

Bioaccumulation Potential: No data available.

13	DISPOSAL CONSIDERATIONS
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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.

14	TRANSPORT INFORMATION
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DOT Not regulated.

IATA Not regulated.

IMDG Not regulated.

15	REGULATORY INFORMATION
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Inventory Status

This product or all components are listed or exempt from listing on the following inventory: TSCA

US Regulations

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Name	RQ
Barytes	1000 lbs
Copper	5000 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
Copper	7440-50-8	10000 lbs	25000 lbs
Antimony trisulphide	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):

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: Barytes; Copper; Graphite; Mica powder; Zirconium oxide

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

Minnesota Hazardous Substances List: Antimony trisulphide; Barytes; Copper; Graphite; Mica powder; Zirconium oxide

New Jersey Right-To-Know List: Antimony trisulphide; Barytes; Copper; Mica powder

Pennsylvania Right-To-Know List: Barytes; Copper; Graphite; Mica powder

Rhode Island Right-To-Know List: Antimony trisulphide; Copper; Graphite; Mica powder; Zirconium oxide

16 OTHER INFORMATION**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.