MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Fluoroelastomer (Viton) Rubber 'Final'
Product No.: V-010, V-014, V-041, V-051, V-054, V-072, V-073, V-074, V-077, V-078, V-079, R9704, R9725, FPM6018

Manufacturer Name:
Federal Mogul Corporation, Indiana
2845 West State Road 28
Frankfort, Indiana 46041
Telephone Number: (765) 654-8761

Emergency Telephone:
Medical Emergency (24HR): 1-800-56 SPILL (800-567-7455)
Transport ER Ph. (outside NA): 703-527-3887
(Accepts collect calls)

Non-emergency Telephone:
General Information: 248-354-9844

Intended Use: Rubber

2 HAZARDS IDENTIFICATION

Emergency Overview
Physical State: Solid rubber
Color: Black
Odor: Characteristic rubber

ATTENTION!
Cancer hazard - can cause cancer. Rubber compounds generally do not pose a health hazard unless heated. Under normal conditions of processing and use, exposure to the chemical constituents in this product is unlikely. All ingredients are tightly bound in a polymeric matrix that has a negligible vapor pressure so there is a low potential for inhalation or ingestion of ingredients. Skin (dermal) contact is possible.

Potential Health Effects

Inhalation: Grinding and sanding this product may generate dust. Dust may irritate throat and respiratory system and cause coughing. Lower concentrations of fumes from burning this material may cause flu-like symptoms or respiratory irritation with coughing, difficulty in breathing, or shortness of breath. High concentrations may cause severe irritation, pulmonary edema (body fluid in the lungs) with coughing, wheezing, and abnormal lung sounds. Symptoms may progress to severe shortness of breath, central nervous system effects, and collapse. Symptoms may be delayed and progressively worsen.

Eye Contact: Grinding and sanding this product may generate dust. Dust may irritate the eyes. Decomposition products may cause eye irritation. Contact with hot material can cause thermal burns which may result in permanent damage.

Skin Contact: Prolonged or repeated skin contact may cause irritation. Individuals sensitive to small amounts of curing agents present may develop a rash (dermatitis). Contact with hot material can cause thermal burns which may result in permanent damage.

Ingestion: No adverse effects due to ingestion are expected.

Chronic Health Effects: Cancer hazard - can cause cancer. Carbon black has caused cancer in experimental animals. IARC (Group 1) and NTP list respirable silica in the form of quartz and cristobalite as a confirmed human carcinogen. Crystalline silica should be treated as a confirmed carcinogen for hazard communication purposes (29 CFR Part 1910.1200(d)(4)). These ingredients are bound within the rubber and release is not expected.

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

OSHA Regulatory Status: Under some use conditions, this material may be considered to be hazardous in accordance with OSHA 29 CFR 1910.1200. When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

Environment: The environmental hazard of the product is considered to be limited.

3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration*
Viton polymer	Various	< 70%
†Carbon black	1333-86-4	< 21%
†Diatomaceous earth	61790-53-2	< 18%
†Barium sulphate	7727-43-7	< 15%
Wollastonite	13983-17-0	< 13%
Polytetrafluoroethylene (PTFE) resin	Various	< 10%
Coal dust	None	< 8%
†Calcium hydroxide	1305-62-0	< 4%
†Crystalline silica, cristobalite	14464-46-1	< 4%
†Magnesium oxide	1309-48-4	< 4%
†Calcium oxide	1305-78-8	< 3%
†Crystalline silica, quartz	14808-60-7	< 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/WHMIS criteria.

4 FIRST AID MEASURES

General: For contact with hot polymer: Flush eyes with lukewarm water for at least 15 minutes. Immerse skin in cool water. DO NOT attempt to remove polymer from skin as this can cause further damage. Get immediate medical attention. Prompt medical attention is required if decomposition products are inhaled.

Inhalation: If fumes from heated product are inhaled: Move into fresh air and keep at rest. Move the exposed person to fresh air at once. For breathing difficulties oxygen may be necessary. If breathing stops, provide artificial respiration. Consult a physician for specific advice.

Eye Contact: Dust in the eyes: Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

Skin Contact: Remove contaminated clothing immediately and wash skin with soap and water. If irritation occurs, get medical assistance.

Ingestion: Rinse mouth thoroughly. Drink plenty of water. Get medical attention if symptoms occur.

5 FIRE-FIGHTING MEASURES

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

Unsuitable Extinguishing Media: Not applicable.

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. Burning this material, or exposing it to temperatures above 300 °C may result in the release of irritating fumes.

Hazardous Combustion Products: Carbon Dioxide, Carbon Monoxide, Fluorine Compounds

Protective Measures: Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid contact with eyes and prolonged skin contact. Wear necessary protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.

Spill Cleanup Methods: Shovel up and place in a container for salvage or disposal. For waste disposal, see section 13 of the MSDS.

Environmental Precautions: No specific precautions.

7 HANDLING AND STORAGE

Handling: All handling to take place in well-ventilated area. Avoid inhalation of dust and contact with skin and eyes. Wear protective gloves and appropriate clothing to prevent skin contact. Do not breathe fumes produced at elevated temperatures. Periodically clean work and storage areas to prevent dust accumulation. Observe good industrial hygiene practices.

Storage: Store in a cool, dry place out of direct sunlight. Keep containers tightly closed to prevent moisture absorption and contamination.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Barium sulphate	ACGIH	TWA	10 mg/m³	
Barium sulphate (Respirable fraction.)	OSHA Z3	TWA	15 Mppcf 5 mg/m³	

Barium sulphate (Total dust.)	OSHA Z3	TWA	50 Mppcf 15 mg/m³	
Barium sulphate (Respirable fraction.)	US. OSHA Table Z-1	TWA	5 mg/m³	
Calcium hydroxide	ACGIH	TWA	5 mg/m³	
Calcium hydroxide (Respirable fraction.)	OSHA Z3	TWA	15 Mppcf 5 mg/m³	
Calcium hydroxide (Total dust.)	OSHA Z3	TWA	50 Mppcf 15 mg/m³	
Calcium hydroxide (Respirable fraction.)	US. OSHA Table Z-1	TWA	5 mg/m³	
Calcium oxide	ACGIH	TWA	2 mg/m³	
Calcium oxide	NIOSH Guide	Concentration	25 mg/m³	
Calcium oxide (Respirable fraction.)	OSHA Z3	TWA	15 Mppcf 5 mg/m³	
Calcium oxide (Total dust.)	OSHA Z3	TWA	50 Mppcf 15 mg/m³	
Calcium oxide	US. OSHA Table Z-1	TWA	5 mg/m³	
Carbon black	ACGIH	TWA	3.5 mg/m³	
Carbon black	NIOSH Guide	Concentration	1750 mg/m³	
Carbon black	US. OSHA Table Z-1	TWA	3.5 mg/m³	
Crystalline silica, cristobalite (Total dust.)	OSHA Z3	OSHA Z3 (TWA)	0.15 mg/m³	
Crystalline silica, cristobalite (Total dust.)	OSHA Z3	TWA	50 Mppcf 15 mg/m³	
Crystalline silica, cristobalite (Respirable.)	OSHA Z3	TWAC	0.05 mg/m³ 1.2 Mppcf	
Crystalline silica, cristobalite (Respirable fraction.)	OSHA Z3	TWA	15 Mppcf 5 mg/m³	
Crystalline silica, cristobalite (Respirable fraction.)	US. OSHA Table Z-1	TWA	5 mg/m³	
Crystalline silica, cristobalite (Total dust.)	US. OSHA Table Z-1	TWA	15 mg/m³	
Crystalline silica, quartz (Respirable fraction.)	ACGIH	TWA	0.05 mg/m³	
Crystalline silica, quartz	NIOSH Guide	Concentration	50 mg/m³	
Crystalline silica, quartz (Total dust.)	OSHA Z3	OSHA Z3 (TWA)	0.3 mg/m³	
Crystalline silica, quartz (Respirable fraction.)	OSHA Z3	TWA	15 Mppcf 5 mg/m³	
Crystalline silica, quartz (Total dust.)	OSHA Z3	TWA	50 Mppcf 15 mg/m³	
Crystalline silica, quartz (Respirable.)	OSHA Z3	TWAC	0.1 mg/m³ 2.4 Mppcf	
Crystalline silica, quartz (Respirable fraction.)	US. OSHA Table Z-1	TWA	5 mg/m³	
Crystalline silica, quartz (Total dust.)	US. OSHA Table Z-1	TWA	15 mg/m³	
Diatomaceous earth (Inhalable particles.)	ACGIH	TWA	10 mg/m³	
Diatomaceous earth (Respirable particles.)	ACGIH	TWA	3 mg/m³	
Diatomaceous earth	OSHA Z3	TWA	20 Mppcf	
Diatomaceous earth (Respirable fraction.)	OSHA Z3	TWA	15 Mppcf 5 mg/m³	

Diatomaceous earth	OSHA Z3	TWAC	0.8 mg/m³	
Diatomaceous earth (Total dust.)	OSHA Z3	TWA	50 Mppcf 15 mg/m³	
Diatomaceous earth (Respirable fraction.)	US. OSHA Table Z-1	TWA	5 mg/m³	
Diatomaceous earth (Total dust.)	US. OSHA Table Z-1	TWA	15 mg/m³	
Magnesium oxide (Inhalable fraction.)	ACGIH	TWA	10 mg/m³	
Magnesium oxide	NIOSH Guide	Concentration	750 mg/m³	
Magnesium oxide (Respirable fraction.)	OSHA Z3	TWA	15 Mppcf 5 mg/m³	
Magnesium oxide (Total dust.)	OSHA Z3	TWA	50 Mppcf 15 mg/m³	
Magnesium oxide (Total particulate.)	US. OSHA Table Z-1	TWA	15 mg/m³	

Engineering Controls: Provide adequate ventilation. If dust or fumes are generated during use, use local exhaust in combination with general ventilation as necessary to remove fumes/dust from the workers' breathing zone and to ensure exposures do not exceed applicable limits.

Respiratory Protection: No protection is ordinarily required under normal conditions of use and with adequate ventilation. During dust-raising work or inhalation of hot/molten material: Use a NIOSH-approved respirator (See 29 CRF 1910.134, respiratory protection standard).

Eye Protection: If contact with hot material may occur, safety glasses and face shield are recommended.

Hand Protection: Gloves are recommended for prolonged use. When material is heated, wear gloves to protect against thermal burns.

Skin Protection: It is a good industrial hygiene practice to minimize skin contact. Thermally protective, chemical resistant apron and long sleeves are recommended when volume of hot material is significant.

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.

9 PHYSICAL AND CHEMICAL PROPERTIES

Color: Black
Odor: Characteristic rubber
Odor Threshold: No data available.
Physical State: Solid rubber
pH: Not applicable
Melting Point: No data available.
Freezing Point: No data available.
Boiling Point: Not applicable.
Flash Point: Not applicable.
Evaporation Rate: Not applicable.
Flammability (Solid): No data available.
Flammability Limit - Upper (%): Not applicable.
Flammability Limit - Lower (%): Not applicable.
Vapor Pressure: Not applicable.

Vapor Density (Air=1): Not applicable.
Specific Gravity: 1.1 - 1.2
Solubility in Water: Insoluble
Solubility (Other): Not applicable.
Partition Coefficient (n-Octanol/water): Not applicable.
Autoignition Temperature: Not applicable.
Decomposition Temperature: No data available.
Explosive Properties: No data available

10 STABILITY AND REACTIVITY

Stability: Stable under normal temperature conditions and recommended use.

Conditions to Avoid: Oxidizing agents

Incompatible Materials: In general, elastomers are incompatible with: Strong oxidizing agents. Reducing agents. PTFE is incompatible with alkali metals and interhalogen compounds.

Hazardous Decomposition Products:

At Elevated Temperatures:	Carbon Dioxide, Carbon Monoxide, Carbonyl fluoride, Fluorocarbon olefins, Hydrogen fluoride, Monomers

Possibility of Hazardous Reactions: Will not occur. The product is fully polymerized.

11 TOXICOLOGICAL INFORMATION

Specified Substance(s)
Acute Toxicity:

Component Chemical Name	Test Results
Calcium hydroxide	Oral LD50 (Rat): 7340 mg/kg
Carbon black	Dermal LD50 (Rabbit): > 3000 mg/kg
Carbon black	Oral LD50 (Rat): > 15400 mg/kg

Other Acute: PTFE resin begins to emit fumes at approximately 315 °C. Workers exposed to PTFE fumes produced at 350-380 °C (temperatures associated with liberation of hexafluoroethane, perfluoroisobutylene, and octafluorocyclobutene) exhibited symptoms consistent with polymer fume fever at workplace air concentrations of 3.5 mg/m3 for compounds containing fluorine. Polymer fume fever lasts 1-2 days and is characterized by influenza-like symptoms including fever, chills, and chest tightness. Smoking cigarettes contaminated with PTFE resin can cause polymer fume fever. PTFE decomposition products vary widely with 4-hour inhalation LC50s from 0.76 ppm (perfluoroisobutane) to 40,000 ppm (tetrafluoroethylene monomer).

Listed Carcinogens: The rubber industry is listed as an exposure circumstance that is known to be carcinogenic to humans (Group 1). IARC, NTP, or OSHA list some of the thermal decomposition products that may be produced at elevated temperatures as confirmed human carcinogens. Carbon black: Certain carbon blacks have proved carcinogenic in animal studies. Inhalation animal studies of high concentrations resulted in chronic inflammation, lung fibrosis and lung tumors. Epidemiology studies of workers include findings of bronchitis, pneumonia, emphysema and excess cancer. IARC (Group 1) and NTP list respirable silica in the form of quartz and cristobalite as a confirmed human carcinogen. Crystalline silica should be treated as a confirmed carcinogen for hazard communication purposes (29 CFR Part 1910.1200(d)(4)).

Substances bound in a polymer or other matrix should present little or no hazard.

Chemical Name	IARC	NTP	OSHA	ACGIH
Carbon black	2B	Not Listed	Not Listed	Not Listed
Crystalline silica, quartz	1	Listed	Not Listed	A2
Crystalline silica, cristobalite	Not Listed	Listed	Not Listed	Not Listed

IARC: 1 = Carcinogenic to Humans; 2A = Probably Carcinogenic to Humans; 2B = Possibly Carcinogenic to Humans. Not listed = Either Group 3 (Not classifiable as to carcinogenicity to humans), Group 4 (Probably not carcinogenic to humans), or not evaluated by IARC.
ACGIH: A1 = Confirmed Human Carcinogen; A2 = Suspected Human Carcinogen; A3 = Confirmed Animal Carcinogen. Not listed = Either A4 (Not classifiable as a human carcinogen), A5 (Not suspected to be a human carcinogen), or not evaluated by ACGIH.

Product Information

Other Acute: The principal components used in this product have been reacted and are no longer present in their original form. The finished polymerized product is an inert polyacrylic rubber, and exposure to the original constituents would not be expected under normal conditions. Like most high-molecular weight polymers, this product is not known to exhibit any adverse acute or chronic health effects. Burning this material, or exposing it to temperatures above 300 °C may result in the release of irritating and toxic fumes including hydrogen fluoride. The type of compounds generated depends upon temperature and conditions. Health effects from these fumes may vary; however, the primary health hazard is expected to arise from the production of fluorine compounds that can cause irritation and pulmonary edema. Other effects may include CNS effects and anoxia. Exposure to sufficient concentrations of decomposition products may result in pulmonary edema. Grinding and sanding this product may generate dust. Dusts may irritate the respiratory tract, skin and eyes. Repeated exposure to high concentrations of dust may adversely affect the lungs and increase the risks of developing respiratory cancer. Dust inhalation can also inhibit the clearance of toxic particles from the lung by decreasing the mobility of alveolar macrophages.

12 ECOLOGICAL INFORMATION

Ecotoxicity: Acute aquatic toxicity information.

Specified Substance(s)

Chemical Name	Test
Carbon black	EC50 (24 hour(s), Daphnia magna): >5600 mg/l
Carbon black	EC50 (72 hour(s), Green Alga): >10000 mg/l
Carbon black	LC50 (96 hour(s), Zebra Fish): >1000 mg/l

Mobility: The product is non-volatile. The product is insoluble in water.

Persistence and Degradability: No data available

Bioaccumulation Potential: No data available on bioaccumulation.

13 DISPOSAL CONSIDERATIONS

General Information: Dispose of waste and residues in accordance with local authority requirements.

Disposal Methods: No specific disposal method required.

Container: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14 TRANSPORT INFORMATION

DOT Not Regulated

TDG Not Regulated

IATA Not Regulated

IMDG Not Regulated

15 REGULATORY INFORMATION

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: D2A

Mexican Dangerous Statement: This is a Mexican "dangerous" product.

Inventory Status: All ingredients are either listed or exempt from listing on EINECS, DSL or TSCA.

US Regulations

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Name	RQ
Barium sulphate	1000 lbs

SARA Title III
Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A): None

Section 311/312 (40 CFR 370):
☐ Acute (Immediate) ☒ Chronic (Delayed) ☐ Fire ☐ Reactive ☐ Pressure Generating

Section 313 Toxic Release Inventory (40 CFR 372): None

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): None

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3): None

Drug Enforcement Act: None

TSCA: No component is listed on TSCA Sections 4(a), 5(a)(2), 5(e) or 12(b).

State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): Carbon black; Crystalline silica, cristobalite; Crystalline silica, quartz

Massachusetts Right-To-Know List: Barium sulphate; Calcium hydroxide; Calcium oxide; Carbon black; Crystalline silica, cristobalite; Crystalline silica, quartz; Magnesium oxide

Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)): None

Minnesota Hazardous Substances List: Barium sulphate; Calcium hydroxide; Calcium oxide; Carbon black; Crystalline silica, cristobalite; Crystalline silica, quartz; Diatomaceous earth; Magnesium oxide

New Jersey Right-To-Know List: Barium sulphate; Calcium hydroxide; Calcium oxide; Carbon black; Crystalline silica, cristobalite; Crystalline silica, quartz; Magnesium oxide

Pennsylvania Right-To-Know List: Barium sulphate; Calcium hydroxide; Calcium oxide; Carbon black; Crystalline silica, cristobalite; Crystalline silica, quartz; Magnesium oxide

Rhode Island Right-To-Know List: Barium sulphate; Calcium hydroxide; Calcium oxide; Carbon black; Crystalline silica, cristobalite; Crystalline silica, quartz; Diatomaceous earth; Magnesium oxide

16 OTHER INFORMATION

HAZARD RATINGS

	Health Hazard	Fire Hazard	Reactivity Hazard	Special Hazard
NFPA	1	1	0	--

	Health Hazard	Fire Hazard	Reactivity Hazard	Personal Protection
HMIS	1*	1	0	B

0 - Minimal; 1- Slight; 2 - Moderate; 3 - Serious; 4 - Severe *- Chronic Health Effect
B - Safety Glasses & Gloves

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