TECHNICAL SAFETY DATA SHEET

According to the OSHA Hazard Communication standard (1910.1200), this fluoro rubber seal is an "article". The manufactured product (i) is formed to a specific shape or design during manufacture; (ii) has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) does not release, or otherwise result in exposure to, a hazardous chemical under normal conditions of use. Articles are exempt from the Hazard Communication Standard. Accordingly, this is a "Technical Safety Data Sheet" and not a "Material Safety Data Sheet".

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Description:
Fluoro Rubber Seal

Product Name(s) or Number(s):
National Seal, Sealing Element
Material Code "A" and "V"

For further information contact:
Federal-Mogul Corporation
26555 Northwestern Highway
Southfield, MI 48033

24hr Emerg # (Infotrac): 1-800-535-5053
International: 001-325-323-3500
Non-Emerg #: 248-354-9844

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

The following ingredients are present in this product at concentrations greater than 1% (or 0.1% for carcinogens). These components have reacted and are bound in a rubber matrix. Exposure to these components is not expected when handling this product under normal conditions of use.

Ingredients	CAS No.:
Proprietary fluoro rubber	Mixture
Proprietary fillers	Mixture
May contain 12% Crystalline Silica	
Cristobalite <11%	14464-46-1
Quartz <1%	14808-60-7
Proprietary metal oxides	Mixture
May also contain the following (*):	
Carbon steel and/or stainless steel	None Established
Polytetrafluoroethylene	9002-84-0
Rubber sealants	Various
Lubricants	Various

(*) Refer to the respective Technical Safety Data Sheets for information.

OSHA Regulatory Status: This material is not classified as hazardous.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

The product includes a non-flammable rubber compound that may cause minor skin irritation and rashes with repeated or prolonged contact. Rubber compounds generally do not pose a health hazard unless heated. Burning this material, or exposing it to temperatures above 300°C, may result in the release of irritating and toxic vapors and/or particulate matter. Lower concentrations of thermal decomposition products may cause respiratory irritation with coughing, difficulty in breathing, or shortness of breath. Higher concentrations of thermal decomposition products may cause severe irritation, pulmonary edema (fluid in the lungs) with coughing, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath, central nervous system effects, and collapse. Symptoms may be delayed and become more severe as dose increases. Prompt medical attention is recommended for overexposure to thermal decomposition products.

Health Hazards:

Routes of Exposure: Under normal conditions of processing and use, exposure to individual constituents of this product is unlikely. Ingredients are tightly bound in a polymeric matrix that has a negligible vapor pressure and a low potential for inhalation or ingestion. Skin (dermal) contact is possible.

Signs and Symptoms of Exposure: No specific health hazards have been identified for this product. Like similar high molecular weight polymers, the copolymer is expected to exhibit no significant acute or chronic toxicity. Prolonged or repeated skin contact may cause irritation. Individuals sensitive to the curing agents and accelerators present in the rubber may develop a rash (dermatitis).

Exposure to hot materials can cause thermal burns. Thermal decomposition products, dependent upon temperature and other conditions, may produce a variety of health effects. Thermal decomposition products may cause severe eye, skin, and respiratory irritation and lung damage (pulmonary edema).

Carcinogenicity: Carbon black, a constituent in this product, usually contains less than 1% organic matter, including carcinogenic polycyclic aromatic hydrocarbons (PAHs). PAHs are not extractable during normal use; therefore, exposure to them is unlikely. IARC classifies carbon black as possibly carcinogenic to humans. Carbon black has caused cancer in experimental animals. Calcined diatomaceous earth and bituminous coal used in the manufacture of this product may contain up to 12% and 1% crystalline silica, respectively. These ingredients are bound within the fluoro rubber matrix and release is not expected. IARC (Group 1) and NTP list respirable crystalline silica (quartz and cristobalite polymorphs) as confirmed human carcinogens. Crystalline silica should be treated as a confirmed carcinogen for hazard communication purposes, but the product should not be considered carcinogenic.

Other constituents, present in concentrations greater than 0.1%, have not been designated as a suspect carcinogen by IARC, NTP, or OSHA.

Medical Conditions Aggravated by Exposure: Repeated contact may aggravate pre-existing skin conditions. Repeated dust and fume inhalation may aggravate pre-existing respiratory conditions.

Hazard Codes:	**Health**	**Flammability**	**Reactivity/Instability**
NFPA:	1	1	0
HMIS:	1	1	0

SECTION 4: FIRST AID MEASURES

Ingestion: If conscious, drink 4 to 8 ounces of water or milk. NEVER give liquids to an unconscious person. Get medical attention.

Inhalation: If thermal decomposition products are inhaled, remove to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Get immediate medical attention.

Eye Contact: Flush with large amounts of water for at least 15 minutes. If irritation persists, get medical attention.

Skin Contact: If irritation or rash occurs, remove contaminated clothing and wash affected area thoroughly with soap and water. If irritation persists, seek medical attention. Prevent further exposure. Use of barrier creams may help prevent irritation.

SECTION 5: FIRE FIGHTING MEASURES

This product is an inert, cured material, and will not thermally decompose at foreseeable conditions of use.

Flashpoint: N/A **Flammable Limits UEL:** N/A **LEL:** N/A

Extinguishing Media: Water, foam, dry chemical

Unusual Fire and Explosion Hazards: Fire can thermally decompose this product, generating irritating and toxic compounds including oxides of carbon and nitrogen, acrylonitrile, butadiene, hydrogen cyanide, and other oxidation products. (See Section 10). Non-flammable, but once ignited may be difficult to extinguish.

Special Fire Fighting Procedures: Firefighters should wear a self-contained breathing apparatus operated in positive pressure mode, full turnout or bunker gear, and additional chemical protective clothing to prevent exposure to thermal decomposition products. Wear appropriate protective gloves when handling refuse from a fire involving this polymer.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Sweep or pick up for disposal or reprocessing, as appropriate.

SECTION 7: HANDLING AND STORAGE

Store in a cool, dry place, out of direct sunlight and away from solvents. Keep containers tightly closed to prevent moisture absorption and contamination. Do not inhale vapors or particulate matter produced at elevated temperatures.

Avoid contamination of food and tobacco products. Wash hands before work breaks, eating or smoking. Practice good housekeeping. Periodically clean work and storage areas to prevent dust accumulation.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: None required under normal working conditions. If ventilation is insufficient to control air contaminants, select NIOSH/MSHA approved respiratory protection for the magnitude and type of exposure. Properly select and maintain respirators.

Ventilation Protection: General ventilation is recommended for normal conditions of use. Use local exhaust ventilation in combination with general ventilation, as necessary, to remove vapor and dust from the workers' breathing zone and to ensure exposures do not exceed applicable limits.

Protective Gloves: None required. Appropriate gloves or barrier creams are recommended for sensitive individuals.

Eye Protection: Safety glasses are recommended protection in the workplace. Wear chemical protective goggles to prevent exposure to fume produced at elevated temperatures.

Other Recommended Clothing: If there is potential contact with hot material, wear heat resistant personal protective equipment. Do not handle decomposed polymer, even when cool.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

The following values are for the base copolymer. Testing has not been performed to determine physical and chemical parameters of the cured fluoro rubber stock.

Boiling Point:	N/A	**Vapor Pressure:**	N/A
pH:	N/A	**% Volatile:**	N/A
Specific Gravity:	Approx. 1.1-1.2	**Evaporation Rate:**	N/A
Water Solubility:	Insoluble	**Vapor Density (air =1):**	N/A
Appearance and Odor:	Rubber with characteristic odor		

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and storage conditions.

Incompatibility (materials to avoid): None known. In general, elastomers are incompatible with strong oxidizing and reducing agents.

Hazardous Polymerization: Will not occur. Product is fully polymerized.

Decomposition Products: Thermal decomposition can generate irritating and toxic compounds including acetone, acrylonitrile, aliphatic and aromatic hydrocarbons, alcohols, ammonia, butadiene, carbon disulfide, oxides of carbon and nitrogen, formaldehyde, hydrogen cyanide, naphthalene, phenol, and other compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

The principal components of this product have been reacted and are no longer present in their original form. The finished polymerized product is an inert, cured fluoro rubber, and exposure to individual constituents is not expected under normal conditions. Like most high-molecular weight polymers, this product is not known to produce any adverse acute or chronic health effects.

Burning this material or exposing it to temperatures in excess of 300 °C can generate irritating and toxic thermal decomposition products. The type of compounds generated depends upon temperature and other conditions. Health effects from thermal decomposition products can range from transient to severe eye, skin and respiratory irritation, pulmonary edema, central nervous system effects, cyanosis, thyroid enlargement, and a variety of other effects. (For further information concerning decomposition products, See Section 10.) Some decomposition products are toxic if absorbed through intact skin.

Grinding and sanding this product may generate dust. Dust may irritate the respiratory tract, skin and eyes. Dust inhalation can also inhibit clearing toxic particles from the lung by decreasing the mobility of alveolar macrophages. Repeated exposure to high concentrations of dust may adversely affect the lungs.

IARC, NTP, and OSHA list some of the thermal decomposition products that may be produced at elevated temperatures as suspected or confirmed human carcinogens.

SECTION 12: ECOLOGICAL INFORMATION

Due to its negligible solubility and inert properties, this product does not present an ecological concern during normal handling and use. Ensure wastes are discarded in an appropriate manner in accordance with federal, state and local regulations.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of according to applicable federal, state and local requirements.

SECTION 14: TRANSPORTATION INFORMATION

DOT TRANSPORT INFORMATION: Not hazardous.

SECTION 15: REGULATORY INFORMATION

California Proposition 65: This product may contain crystalline silica and may contain crystalline silica, ingredients known to the State of California to cause cancer. Because these ingredients are tightly bound, exposure is unlikely; therefore, this product is exempt from the requirements of Proposition 65, as defined under Title 22 of the California Code of Regulations.

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:
This product contains the following toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

CAS NUMBER	INGREDIENT NAME	PERCENT BY WEIGHT
1314-13-2	Zinc oxide*	< 3

* Zinc oxide is listed under the generic SARA 313 class of "zinc compounds."

SECTION 15: REGULATORY INFORMATION (CONTINUED)

Clean Air Act: The constituents present at concentrations greater than 1% have not been classified as Hazardous Air Pollutants under Title III, Section 112 of the Clean Air Act.

OSHA: OSHA has developed a PEL for selected constituents (see Section 2), but has not developed exposure standards for this product.

TSCA: The constituents of this product are listed in the TSCA inventory.

WHMIS Classification: D2A or E (for constituents only, not for the product)

SECTION 16: OTHER INFORMATION

Abbreviations:

N/A:	Not Applicable
OSHA:	U.S. Occupational Safety and Health Administration
PELs:	Permissible exposure limits
NIOSH:	National Institute for Occupational Safety and Health
CAS No.:	Chemical Abstract Services Number
IARC:	International Agency for Research on Cancer
NTP:	National Toxicology Program

The information provided on this data sheet was abstracted from MSDSs from our suppliers 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 this date provided, true and accurate to the best of Federal-Mogul's knowledge.