

Viton® fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

| | | |
|---------------------|---|---|
| Product name | : | Viton® fluoroelastomer |
| Product Grade/Type | : | VTR-9158 |
| MSDS Number | : | 150000002407 |
| Product Use | : | Rubber products |
| Manufacturer | : | DuPont Performance Elastomers L.L.C Bellevue Park Corporate Center, 300 Bellevue Parkway Wilmington, Delaware 19809 |
| Product Information | : | 1-800-441-7515 (outside the U.S. 1-302-774-1000) |
| Medical Emergency | : | 1-800-441-3637 (outside the U.S. 1-302-774-1139) |
| Transport Emergency | : | CHEMTREC: 1-800-424-9300 (outside the U.S. 703-527-3887) |

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

May cause skin and eye irritation in susceptible persons.

Potential Health Effects

Skin

4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]diphenol : Causes skin irritation.

Eyes

Barium sulfate : May irritate eyes. Dust may cause: mechanical irritation with tearing, pain or visual impairment.

Benzyltriphenylphosphonium 4,4'-[2,2,2-Trifluoro-1-(Trifluoromethyl)ethylidene]diphenol Salt (1:1) : May irritate eyes.

Inhalation

Polyvinylidene fluoride/hexafluoropropene : Inhalation of decomposition products from overheating may cause lung irritation or shortness of breath. Fluid in the lungs (pulmonary oedema) with cough, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath and bluish discoloration of the skin (symptoms might be delayed)

Repeated exposure

Barium sulfate : lung effects

Target Organs

Viton® fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

Barium sulfate : Lungs

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No. | Concentration |
|--|------------|---------------|
| Polyvinylidene fluoride/hexafluoropropene | 9011-17-0 | >92% |
| Wollastonite | 13983-17-0 | <4 % |
| 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]diphenol | 1478-61-1 | <2 % |
| Barium sulfate | 7727-43-7 | <1 % |
| Benzyltriphenylphosphonium 4,4'-<Trifluoro-1-(Trifluoromethyl)Ethylidene>Diphenol Salt (1:1) | 75768-65-9 | <1 % |

SECTION 4. FIRST AID MEASURES

| | |
|----------------|--|
| Skin contact | : Wash off with soap and water. Cool skin rapidly with cold water after contact with hot polymer. Do not peel polymer from the skin. Consult a physician if necessary. |
| Eye contact | : Rinse thoroughly with plenty of water, also under the eyelids. Consult a physician. |
| Inhalation | : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. Consult a physician. |
| Ingestion | : If victim is conscious: Drink water as a precaution. Consult a physician. |
| General advice | : If symptoms persist, call a physician. |

SECTION 5. FIRE-FIGHTING MEASURES

| | |
|---------------------------|--|
| Flammable Properties | |
| Flash point | : > 204 °C (> 399 °F) open cup |
| Fire and Explosion Hazard | : Burning produces obnoxious and toxic fumes. |
| Extinguishing Media | : Carbon dioxide (CO ₂), Foam, Water, Dry chemical |

Viton[®] fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

Firefighting Instructions : Wear self-contained breathing apparatus and protective suit. Wear neoprene gloves during cleaning up work after a VITON[®] fire. Evacuate personnel to safe areas. Do not allow run-off from fire fighting to enter drains or water courses. The solid polymer can only be burned with difficulty.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Ventilate the area. Refer to protective measures listed in sections 7 and 8.

Spill Cleanup : Shovel into suitable container for disposal. Clean contaminated floors and objects thoroughly while observing environmental regulations.

Accidental Release Measures : Try to prevent the material from entering drains or water courses.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel) : Protect from contamination. Provide appropriate exhaust ventilation at dryers, machinery and at places where dust or volatiles can be generated. In case of insufficient ventilation, wear suitable respiratory equipment. Do not breathe dust. Do not breathe fumes evolved from hot polymer. General precaution for all plastics and elastomers: Wash hands before breaks and immediately after handling the product. Regular cleaning of equipment, work area and clothing. When using do not eat, drink or smoke.

Handling (Physical Aspects) : General precaution for all plastics and elastomers: Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Avoid dust formation.

Storage : Keep in a dry, cool and well-ventilated place. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : Use only in area provided with appropriate exhaust ventilation.

Personal protective equipment

Eye protection : Safety glasses with side-shields

Skin protection : If there is a potential for contact with hot/molten material wear heat resistant clothing and footwear. If VITON[®] is used above 315°C the surface may

Viton® fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

contain hydrogen fluoride condensate which may cause severe burns. In this case wear neoprene gloves. Skin should be washed after contact.

Respiratory protection : Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

Exposure Guidelines

Exposure Limit Values

Hydrogen fluoride, anhydrous

| | | | |
|-----|---------|---------|---------------------------|
| PEL | (OSHA) | 6 ppm | STEL as F |
| PEL | (OSHA) | 3 ppm | TWA |
| | | | Skin designation applies. |
| TLV | (ACGIH) | 2 ppm | Ceiling as F |
| TLV | (ACGIH) | 0.5 ppm | TWA as F |

Wollastonite

| | | | | |
|-------|----------|--------------|----------------|---|
| AEL * | (DUPONT) | 2 fibers/cm3 | 8 & 12 hr. TWA | Respirable fibers. |
| AEL * | (DUPONT) | 5 mg/m3 | 8 & 12 hr. TWA | Non-fibrous particulate and/or non-respirable fibres. |

Barium sulfate

| | | | | |
|-------|----------|-----------|-----------------|----------------------|
| PEL | (OSHA) | 15 mg/m3 | 8 hr. TWA | Total dust. |
| PEL | (OSHA) | 0.5 mg/m3 | 8 hr. TWA as Ba | |
| PEL | (OSHA) | 5 mg/m3 | 8 hr. TWA | Respirable fraction. |
| TLV | (ACGIH) | 10 mg/m3 | TWA | |
| AEL * | (DUPONT) | 10 mg/m3 | 8 & 12 hr. TWA | Total dust |

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------|---------------------|
| Form | : sheets, pellets |
| Color | : white, off-white |
| Odor | : none |
| Density | : 1.75 - 1.90 g/cm3 |
| Water solubility | : insoluble |

SECTION 10. STABILITY AND REACTIVITY

| | |
|---------------------|---|
| Conditions to avoid | : Processing temperature > 200 °C (> 392 °F) Avoid heating for prolonged periods above the recommended upper processing limit. |
| Incompatibility | : Powdered metals Finely divided aluminium Alkali metals Alkaline earth metals |
| Decomposition | : Hazardous decomposition products Hydrogen fluoride, Carbonyl fluoride, Fluorinated hydrocarbons, Fluorinated olefins. |

Viton® fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

Polymerization : Polymerization will not occur.
During drying, cleaning and moulding, small amounts of hazardous gases and/or particulate matter may be released.
These may irritate eyes, nose and throat.

SECTION 11. TOXICOLOGICAL INFORMATION

Polyvinylidene fluoride/hexafluoropropene

Dermal : No adverse effects expected.

Oral ALD : > 5,000 mg/kg, rat

Skin irritation : non-irritant

Repeated dose toxicity : Inhalation
No adverse effects expected.Oral
Liver enlargement

Carcinogenicity : No adverse effects expected.

Mutagenicity : No adverse effects expected.

Toxicity to reproduction : No adverse effects expected.

Teratogenicity : No adverse effects expected.

Wollastonite

Repeated dose toxicity : Inhalation, rat
lung effects

Carcinogenicity : Animal testing did not show any carcinogenic effects., No increased risk of cancer in humans has been shown in workplace-based studies.

Mutagenicity : Caused genetic damage in cultured mammalian cells., Not mutagenic in Ames Test.

4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]diphenol

Oral ALD : 3,400 mg/kg, rat

Skin irritation : irritant

Skin sensitization : Species: guinea pig
Animal test did not cause sensitization by skin contact.

Viton® fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

Repeated dose toxicity : Dermal
No toxicologically significant effects were found.

Mutagenicity : Did not cause genetic damage in cultured bacterial cells., Tests on mammalian cell cultures showed mutagenic effects

Barium sulfate

Oral LD50 : > 5,000 mg/kg, rat

Skin irritation : Species: human
non-irritant

Repeated dose toxicity : Inhalation, animals (unspecified species)
lung effects

Mutagenicity : Evidence suggests this substance does not cause genetic damage in animals., Information given is based on data obtained from similar product.

Benzyltriphenylphosphonium 4,4'-<Trifluoro-1-(Trifluoromethyl)Ethylidene>Diphenol Salt (1:1)

Oral LD50 : 4,385 mg/kg, rat

Skin irritation : Species: rabbit
non-irritant

Eye irritation : Species: rabbit
Mild eye irritation

Mutagenicity : Did not cause genetic damage in cultured bacterial cells.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Polyvinylidene fluoride/hexafluoropropene

: This product has no known eco-toxicological effects.

4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]diphenol

96 h LC50 : Oncorhynchus mykiss (rainbow trout) < 1 mg/l

72 h ErC50 : Algae > 0.808 mg/l

72 h EbC50 : Algae 0.156 mg/l

48 h EC50 : Daphnia 3.2 mg/l

Barium sulfate

48 h EC50 : Daphnia magna (Water flea) 32 mg/l

Viton® fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

Additional ecological information : We have no quantitative data concerning the ecological effects of this product.

SECTION 13. DISPOSAL CONSIDERATIONS

- Waste Disposal : If recycling is not practicable, dispose of in compliance with local regulations. Can be landfilled or incinerated, when in compliance with local regulations. Incinerate only in incinerators capable of scrubbing out acidic combustion products.
- Environmental Hazards : Offer rinsed packaging material to local recycling facilities. If recycling is not practicable, dispose of in compliance with local regulations.

SECTION 14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

- TSCA Status : In compliance with TSCA Inventory requirements for commercial purposes.
- SARA 313 Regulated Chemical(s) : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
- California Prop. 65 : Chemicals known to State of California to cause cancer, birth defects or any other harm: none known
- PA Right to Know Regulated Chemical(s) : Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): No components present on the PA state hazardous substance lists.
- NJ Right to Know Regulated Chemical(s) : Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): No components present on the NJ state hazardous substance lists.

SECTION 16. OTHER INFORMATION

- Restrictions for use : Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont Performance Elastomer's caution bulletin No. H-69237.

Viton® fluoroelastomer

Version 2.0

Revision Date 09/25/2008

Ref. 150000002407

Before use read DuPont Performance Elastomer's safety information.® Registered trademark of DuPont Performance Elastomers

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.