

# Material Safety Data Sheet

**DuPont**  
**Performance Elastomers**

## Viton® fluoroelastomer

Version 2.3

Revision Date 03/22/2010

Ref. 15000002361

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 : A-201C, A-401C, A-601C, VTR-7155, VTR-7295, VTR-9129, VTR-9210, VTR-9234, VTR-9254, VTR-9257, VTR-7559, VTR-7560, A-501C, VTR-7621, VTX-7624  
MSDS Number : 15000002361  
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. 1-703-527-3887)

### 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

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

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

##### 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

Material Safety Data Sheet

DuPont  
Performance Elastomers

**Viton® fluoroelastomer**

Version 2.3

Revision Date 03/22/2010

Ref. 15000002361

Barium sulfate : lung effects

Target Organs  
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	>96%
4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	<2 %
Benzyltriphenylphosphonium 4,4'-<Trifluoro-1-(Trifluoromethyl)Ethylidene>Diphenol Salt (1:1)	75768-65-9	<1 %
Barium sulfate	7727-43-7	<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 : Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.
- 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 : When symptoms persist or in all cases of doubt seek medical advice.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Flammable Properties
- Flash point : > 204 °C (> 399 °F) open cup
- Fire and Explosion Hazard : Burning produces noxious and toxic fumes.
- Suitable extinguishing media : Carbon dioxide (CO2), Foam, Water, Dry chemical

Material Safety Data Sheet

DuPont  
Performance Elastomers

**Viton® fluoroelastomer**

Version 2.3

Revision Date 03/22/2010

Ref. 15000002361

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

Hand protection : Material: Nitrile rubber

Material Safety Data Sheet

DuPont  
Performance Elastomers

Viton® fluoroelastomer

Version 2.3

Revision Date 03/22/2010

Ref. 150000002361

Glove thickness: 0.38 mm  
Wearing time: 8 h  
Additional protection: Skin should be washed after contact.

Eye protection : Safety glasses with side-shields  
Skin and body 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 contain hydrogen fluoride condensate which may cause severe burns. In this case wear neoprene gloves.

Exposure Guidelines

Exposure Limit Values

Hydrogen fluoride (anhydrous)

PEL (Permissible Exposure Limit)	(OSHA)	2.5 mg/m3	8 hr. TWA as F
PEL (Permissible Exposure Limit)	(OSHA)	3 ppm	TWA
TLV	(ACGIH)	0.5 ppm	TWA as F
TLV	(ACGIH)	2 ppm	TLV-C as F
		Skin designation	

Barium sulfate

PEL (Permissible Exposure Limit)	(OSHA)	5 mg/m3	8 hr. TWA	Respirable fraction.
PEL (Permissible Exposure Limit)	(OSHA)	0.5 mg/m3	8 hr. TWA as Ba	
PEL (Permissible Exposure Limit)	(OSHA)	15 mg/m3	8 hr. TWA	Total dust.
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

Material Safety Data Sheet

DuPont  
Performance Elastomers

Viton® fluoroelastomer

Version 2.3

Revision Date 03/22/2010

Ref. 150000002361

processing limit.

- Incompatibility : Powdered metals Finely divided aluminium Alkali metals Alkaline earth metals
- Hazardous decomposition products : Hazardous decomposition products Hydrogen fluoride, Carbonyl fluoride, Fluorinated hydrocarbons, Fluorinated olefins
- Hazardous reactions : 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

Skin sensitization : Not a skin sensitizer.

Repeated dose toxicity : Inhalation  
No adverse effects expected.

Oral  
No adverse effects expected.

Carcinogenicity : No adverse effects expected.

Mutagenicity : No adverse effects expected.

Reproductive toxicity : No adverse effects expected.

Teratogenicity : No adverse effects expected.

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.

Repeated dose toxicity : Dermal

Material Safety Data Sheet

DuPont  
Performance Elastomers

**Viton® fluoroelastomer**

Version 2.3

Revision Date 03/22/2010

Ref. 150000002361

No toxicologically significant effects were found.

Oral - gavage, rat  
Reduced body weight gain, Organ weight changes, Hypoactivity

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

Reproductive toxicity : Experiments have shown reproductive toxicity effects on laboratory animals.

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.

Barium sulfate

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

Skin irritation : Species: human  
non-irritant

Skin sensitization : Species: human, Patch test on human volunteers did not demonstrate sensitization properties.

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.

**SECTION 12. ECOLOGICAL INFORMATION**

Aquatic Toxicity

Polyvinylidene fluoride/hexafluoropropene

: This product has no known eco-toxicological effects.

48 h EC50

: Daphnia magna (Water flea) > 205 mg/l

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

Material Safety Data Sheet

DuPont  
Performance Elastomers

Viton® fluoroelastomer

Version 2.3

Revision Date 03/22/2010

Ref. 150000002361

72 h ErC50 : Algae > 0.808 mg/l

72 h EbC50 : Algae 0.156 mg/l

48 h EC50 : Daphnia 3.2 mg/l

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**

EINECS Status : On the inventory, or in compliance with the inventory  
TSCA Status : In compliance with TSCA inventory requirements for commercial purposes.  
AICS Status : On the inventory, or in compliance with the inventory  
DSL Status : On the inventory, or in compliance with the inventory  
ENCS (JP) Status : On the inventory, or in compliance with the inventory  
KECI (KR) Status : On the inventory, or in compliance with the inventory  
PICCS (PH) Status : On the inventory, or in compliance with the inventory  
INV (CN) Status : On the inventory, or in compliance with the inventory  
NZ HSNO Status : Exempt

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 the 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

Material Safety Data Sheet

DuPont  
Performance Elastomers



**Viton® fluoroelastomer**

Version 2.3

Revision Date 03/22/2010

Ref. 150000002361

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**

- MSDS preparation date : 03/22/2010
- 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.

Before use read DuPont Performance Elastomer's safety information.

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.



Printing date 20.01.2009

Revision: 20.01.2009

**1 Identification of the substance/preparation and of the company/undertaking**

- **Product details**
- **Trade name:** NEOFLO**N** FEP/NP-20,21,30,101,120,1101
- **Article number:** 1101
- **Application of the substance / the preparation:** Synthetic resin.
- **Manufacturer/Supplier:**  
DAIKIN INDUSTRIES, LTD. CHEMICAL DIVISION:  
Umeda Center Bldg., 4-12, Nakazaki-Nishi2-chome, Kita-Ku, Osaka, JAPAN  
Phone: (+81) 6-6373-4349 Fax: (+81) 6-6373-4389
- **Further information obtainable from:** <http://www.daikin.com/>
- **Information in case of emergency:** +81-6-6349-7521, +1-256-306-5000, +86-512-5232-0973, +49-211-179 225-0

**2 Hazards identification**

- **GHS label elements:** Void

**3 Composition/information on ingredients**

- **Chemical characterization:**
- **CAS No. Description:**  
25067-11-2 FEP

**4 First-aid measures**

- **General information:** Seek immediate medical advice.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
After contact with the molten product, cool rapidly with cold water.  
Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.

**5 Fire-fighting measures**

- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** none
- **Special hazards caused by the substance, its products of combustion or resulting gases:**  
Formation of toxic gases is possible during heating or in case of fire.
- **Protective equipment:** Wear fully protective suit.

**6 Accidental release measures**

- **Person-related safety precautions:** Wear protective clothing.
- **Measures for environmental protection:** Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:** Pick up mechanically.
- **Additional information:** No dangerous substances are released.

**7 Handling and storage**

- **Handling:**
- **Information for safe handling:**  
Extractors are required on all machines used for thermal processing or splinter removal processes.

(Contd. on page 2)

JP

FEP

## Safety Data Sheet

Printing date 20.01.2009

Revision: 20.01.2009

Trade name: NEOFロン FEP NP-20,21,30,101,120,1101

(Contd. of page 1)

- **Information about fire - and explosion protection:** No special measures required.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Protect from contamination.

### 8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Wash hands before breaks and at the end of work.  
Keep away from tobacco products.
- **Respiratory protection:**  
For conditions where exist a potential for significant exposure to fumes and/or toxic vapours use a full-face-mask with the acid and organic vapor cartridges.
- **Protection of hands:** Synthetic rubber gloves
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing

### 9 Physical and chemical properties

#### · General Information

<b>Form:</b>	Pellets
<b>Colour:</b>	Whitish
<b>Odour:</b>	Odourless

#### · Change in condition

**Melting point/Melting range:** 245-275°C  
**Boiling point/Boiling range:** Undetermined.

- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Product is not flammable.
- **Decomposition temperature:** 398°C (0.1%TG)
- **Danger of explosion:** Product does not present an explosion hazard.
- **Density at 25°C:** 2,12-2,17 g/cm<sup>3</sup>
- **Solubility in / Miscibility with water:** Insoluble.

### 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**  
To avoid thermal decomposition do not overheat.  
Even at the temperatures reached during the normal hot processing of fluoropolymers fume will be generated, that will present a potential health hazard.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous decomposition products:** Danger of toxic fluorine based pyrolysis products.

JP  
(Contd. on page 3)

Printing date 20.01.2009

Revision: 20.01.2009

Trade name: NEOFLON FEP NP-20,21,30,101,120,1101

(Contd. of page 2)

**11 Toxicological information**

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect known.
- **on the eye:** No irritant effect known.
- **Sensitization:** No sensitizing effects known.

**12 Ecological information**

- **Information about elimination (persistence and degradability):**
- **Other information:** The product is insoluble in water and the biodegradation and ecotoxicity is expected to be low.

**13 Disposal considerations**

- **Product:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- **UN "Model Regulation":** -

**15 Regulatory information**

- **Safety phrases:**
- 15 Keep away from heat.
- 21 When using do not smoke.

**16 Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing MSDS:** Toxicology and Product Regulatory
- **Contact:** <http://www.daikin.com/>
- **Abbreviations and acronyms:**
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- CAS: Chemical Abstracts Service (division of the American Chemical Society)