

MATERIAL SAFETY DATA SHEET

PRODUCT NAME : 'O' RINGS - VITON®

1. Product and Company Identification

Product name: Fluoroelastomer 'O' rings
Synonyms: Viton® 'O' rings
Item Numbers: H021-23-XXX*, H021-24-XXX*, H021-06-XXX*
* XXX-size dependent - see Edwards Catalog for details.

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2. Hazards Identification

EMERGENCY OVERVIEW

These products when properly handled according to good working and hygienic practices are not dangerous to human health and the environment.

Degradation by chemicals, ageing, heat or fire may produce a toxic and/or corrosive residue depending on the circumstances of degradation and other materials involved.

The combustion products of fluoroelastomer must be considered toxic and possibly corrosive.

For short and long term exposure effects see Section 11 Toxicological data.

Eye Effects: None under normal conditions of use.

Skin Effects: May cause dermatitis irritation of sensitive skin.
Hydrogen fluoride can be present in fumes from fires or high temperatures. In the presence of water or humidity hydrogen fluoride dissolves to form extremely corrosive hydrofluoric acid. Skin contact with this liquid or decomposition residue can cause painful and penetrating burns. Permanent irreversible skin tissue damage can occur.

Ingestion/Oral Effects: None under normal conditions of use.

Inhalation Effects: None under normal conditions of use. Inhalation of hydrogen fluoride released at high temperature can be irritating to the lungs and fatal. See comments related to decomposition fumes in 'Skin Effects' above.

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MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

NFPA Hazard codes		HMIS Hazard codes		Rating System
Health	1	Health	0	0 = No Hazard 1 = Slight Hazard 2 = Moderate Hazard 3 = Serious Hazard 4 = Severe Hazard
Flammability	0	Flammability	0	
Instability	0	Reactivity	0	

3. Composition/Information on Ingredients

Ingredient	% Weight	CAS No	Hazard class*	Risk phrase*
Fluoroelastomer rubber with curatives, additives and fillers	Percentage composition not available	Not allocated	Not applicable	Not applicable

*Hazard class & Risk phrase. These columns are only completed for ingredients which are classified as hazardous under EU Directive No 1272/2008 (as amended) and are present in sufficient concentration to make the overall substance hazardous. In all other situations, the column will be completed as "Not applicable".

4. First Aid Measures

- Eyes:** If small particles enter the eye, flush with sterile water for at least 10 minutes. If irritation persists seek medical attention.
- Skin:** No effects requiring first aid are expected during normal use. In case of contact with thermally degraded fluoroelastomer, immediately wash the affected area with cold running water and seek immediate medical assistance *.
- Ingestion/Oral:** No effects requiring first aid are expected during normal use. If ingested, do not induce vomiting. If conscious, drink copious amounts of water.
- Inhalation:** No effects requiring first aid are expected during normal use. If exposed to fumes released during processing, remove the patient to fresh air and seek medical attention. If exposed to fumes resulting from thermal degradation, seek immediate medical assistance *. If breathing problems occur, a qualified individual should administer oxygen or artificial respiration as indicated.
- Other Information:** * In all cases of exposure to thermally degraded fluoroelastomer, when hydrogen fluoride may be a decomposition product, seek immediate medical advice.

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5. Fire Fighting Measures

Extinguishing Media: Dry chemicals, foam, carbon dioxide, water.

Fire and Explosion Hazard: When exposed to temperatures above 250 °C/482 °F, fluoroelastomer can decompose to produce toxic and corrosive substances including hydrogen fluoride, fluorinated hydrocarbons, carbonyl fluoride, fluorinated olefins and carbon monoxide.
Note: Fumes can be trapped in an enclosed area without adequate ventilation, such as inside a control valve.

Special Protective Equipment for Fire Fighters: Fire fighters should wear a self-contained breathing apparatus (SCBA) which meets appropriate standards operated in positive pressure mode, and full turnout gear. Wear skin protection adequate to protect from thermal decomposition products.
Use acid resistant protective clothing (capable of resisting hydrofluoric acid) to handle cool parts containing decomposed fluoroelastomer.

For Flammability Properties - see Section 9.

6. Accidental Release Measures

No material specific actions are required. Collect the spilled items, and re-use or dispose (see Section 13).

7. Handling and Storage

Handling: No special precautions required for the product in its moulded state. See Section 5 Fire Fighting Measures, for information on handling of degraded or charred material.

Storage: Store in cool, well ventilated space away from direct sunlight and sources of ignition.
Store in original packaging showing code numbers.
Store in accordance with DIN 7716 or DIN 9088.

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8. Exposure Controls/Personal Protection

Exposure Limits:

Ingredient	ACGIH - TLV -	OSHA - PEL	Occupational Exposure Limits EH40 (UK)
Fluoroelastomer rubber with curatives, additives and fillers	None	None	Rubber fumes - maximum exposure - 0.6 mg/m ³ (8h TWA)

Personal Protection:

Engineering Measures:	None required under normal conditions of use.
Respiratory Protection:	None required under normal conditions of use.
Hand/Skin Protection:	Wear suitable protective gloves.
Eye/Face Protection:	None required under conditions of normal use. Wear safety glasses when cutting/machining material.
Hygiene Measures:	Practice good workplace hygiene. Do not eat or smoke when handling. Wash hands after handling and before eating.
Other/General Protection:	None.

9. Physical and Chemical Properties

Appearance and Odour	Coloured elastomer. Mild aromatic odour.	Boiling point	No data available	°C/°F
pH (as supplied)	No data available	Freezing Point	No data available	°C/°F
Solubility in Water	Insoluble	Auto Ignition	> 250 / 482	°C/°F
Volatile Content by Volume	No data available	Flash Point	> 250 / 482	°C/°F
Specific Gravity	1.8 to 3.0 g/cm ³			
Vapour Pressure (mbar)	No data available	Vapour Pressure (Torr)	No data available	

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10. Stability and Reactivity

Stability:	Stable.
Material/Conditions to Avoid:	Molten alkali metals and alkaline solutions. Temperatures higher than 250 °C / 482 °F.
Hazardous Decomposition:	When exposed to temperatures above 315 °C/599 °F, fluoroelastomer can decompose to produce toxic and corrosive substances including hydrogen fluoride, fluorinated hydrocarbons, carbonyl fluoride, fluorinated olefins and carbon monoxide.
Hazardous Polymerisation:	Will not occur.

11. Toxicological Information

For a comprehensive description for the various toxicological (health) effects which may arise if the user comes into contact with the substance or preparation refer to Section 2 Hazards Identification.

Animal data:

LD50 value:	No data available.
LC50 value:	No data available.

Carcinogenicity:

No known carcinogenic hazardous effects.

12. Ecological Information

The ecological effects of the product have not been fully established. The product is not expected to be substantially biodegradable. The material contains no chlorofluorocarbons (CFCs).

Water Hazard Class (WGK) 0, generally not hazardous for water (self-classification).

13. Disposal Considerations

The material must be properly contained. Dispose of at approved landfill sites, or by high temperature incineration, using licensed contractors. Disposal must be in accordance with local authority and national regulations.

Disposal code: EAK 160119.

Contaminated packages or empty containers to be re-utilised or disposed of through standard waste-management processes.

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14. Transport Information

This product is not classified as dangerous under transport regulations.

PARAMETER	EUROPEAN	CANADIAN TDG	UNITED STATES DOT
Proper Shipping Name	Not applicable	Not applicable	Not applicable
Hazard Class	Not applicable	Not applicable	Not applicable
Identification Number	Not applicable	Not applicable	Not applicable
Shipping Label	Not applicable	Not applicable	Not applicable

15. Regulatory Information

European Regulatory Information

This product has been classified in accordance with EU Regulation No 1272/2008 (as amended) on the Classification, Labelling and Packaging of Substances and Mixtures.

Classified as dangerous to supply: No.

Risk Phrases: Not applicable.

Safety Phrases: Not applicable.

Symbols: None.

United States Regulatory Information

Product is a manufactured article not subject to TSCA listing.

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product constitutes an "article" and, as such is exempt from SARA 313 reporting requirements (40 CFR Part 372.38, Paragraph B).

California Proposition 65: This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

Canadian Regulatory Information

WHMIS Classification: Product is a manufactured article not subject to WHMIS regulations.

Product is a manufactured item not subject to DSL listing.

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16. Other Information

This MSDS is compiled in accordance with ANSI Z400.1 and Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Sources of information for this data sheet:

- Trelleborg Sealing Solutions 'FKM' Safety Data Sheet EG 93/112-NORM. Revision: 5.04.2007. Version: 4.0.

Glossary:

ACGIH - American Conference of Governmental Industrial Hygienists; **ANSI** - American National Standards Institute; **Canadian TDG** - Canadian Transportation of Dangerous Goods; **CAS** - Chemical Abstracts Service; **Chemtrec** - Chemical Transportation Emergency Center (US); **DIN** - German National Standard; **DSL** - Domestic Substances List; **EH40 (UK)** - HSE Guidance Note EH40 Occupational exposure limits; **EPCRA** - Emergency Planning and Community Right-To-Know Act; **HMIS** - Hazardous Material Information Service; **LC** - Lethal Concentration; **LD** - Lethal Dose; **NFPA** - National Fire Protection Association; **OSHA** - Occupational Safety and Health Administration, US department of Labour; **PEL** - Permissible exposure limit; **SARA (Title III)** - Superfund Amendments and Reauthorization Act; **SARA 313** - Superfund Amendments and Reauthorization Act, Section 313; **SCBA** - Self-Contained Breathing Apparatus; **TLV** - threshold limit value; **TSCA** - Toxic Substances Control Act Public Law 94-469; **TWA** - Time Weighted Average; **US DOT** - US Department of Transportation; **WGK** - Water Hazard Class; **WHMIS** - Workplace Hazardous Materials Information System.

Revisions:

October 2010 - Data Sheet updated to reflect the latest supplier safety information.

Although the information and recommendations in this data sheet are to the best of our knowledge correct, it is recommended that you make your own determination of the material's suitability for your purpose before you use it. The information contained in this data sheet has been reproduced from the manufacturers data; the accuracy of this information is the responsibility of the manufacturer. Edwards accept no responsibility for damage of any nature resulting from the use of, or the reliance upon, this data sheet.