

**SAFETY DATA SHEET****Converted Nafion Tubing**

Version 1.0

Date of revision: 30 November 2018

**SECTION 1. IDENTIFICATION**

Product name : Converted Nafion Tubing™

Product code : TT product line; TT\*

**Manufacturer or supplier's details**

Company name of supplier : Perma Pure, LLC

Address : 1001 New Hampshire Avenue  
Lakewood, NJ 08701  
United States of America (USA)

Telephone : 1-732-244-0100

**Recommended use of the chemical and restrictions on use**

Recommended use : Extruded tubing used for fluid and gas, separation membrane

Restrictions on use : For industrial use only.  
Do not use or resell Perma Pure™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use.  
For further information, please contact your Perma Pure representative.**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Not a hazardous substance or mixture.

**GHS label elements**

Not a hazardous substance or mixture.

**Other hazards****CAUTION! PROCESSING MAY RELEASE VAPORS AND/OR FUMES WHICH CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.****Signs and symptoms of acute exposure:**

The product, in the form supplied, is not expected to cause significant adverse health effects. Product contains high molecular weight polymer(s). Thermal decomposition vapors of fluorinated plastics may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco. Thermal decomposition vapors may also cause irritation to eyes, respiratory system, and skin.

Repeated or prolonged exposure to vapors and/or fumes may cause headaches, drowsiness, nausea, and/or weakness.

Exposure to eyes may cause reversible cornea opacity and mild conjunctivitis. Refer to first aid measures if eye contact occurs.

**Remarks:**

Use good industrial hygiene and safety practice during handling.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

Substance name : Perfluorosulfonyl fluoride polymer



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CAS-No.	: Trade Secret
Hazardous ingredients	: No hazardous ingredients

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#### SECTION 4. FIRST AID MEASURES

If inhaled	: If inhaled, remove to fresh air Get medical attention if symptoms occur.
In case of skin contact	: Wash with water and soap as a precaution. Get medical attention if symptoms occur.
In case of eye contact	: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
If swallowed	: If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	: Polymer fume fever Local irritation Symptoms may be delayed
Protection of first-aiders	: No special precautions are necessary for first aid responders.
Notes to physician	: Treat symptomatically and supportively.

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#### SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Water spray Alcohol-resistant foam Carbon dioxide (CO <sub>2</sub> ) Dry chemical
Unsuitable extinguishing media	: None known.
Specific hazards during fire fighting	: Exposure to combustion products may be a hazard to health.
Hazardous combustion products	: Hydrogen fluoride Carbonyl fluoride Potentially toxic fluorinated compounds Aerosolized particulates Carbon oxides
Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.



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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Sweep up or vacuum up spillage and collect in suitable container for disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. Consult a regulatory specialist to determine appropriate state or local reporting requirements.

**SECTION 7. HANDLING AND STORAGE**

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use only with adequate ventilation when polymer is heated above 150C. Avoid breathing processing fumes or dust.
- Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
- Conditions for safe storage : Keep in properly labeled containers. Store in accordance with the particular national regulations. Store in cool dry area.
- Information on storage stability : Stable under recommended storage conditions.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Occupational exposure limits:**

Contains no substances with occupational exposure limit values.

**Personal Protective Equipment:**

Wear eye protection as appropriate to prevent eye contact. Have eye-washing facilities readily available where eye contact can occur. Wash hands before breaks and at the end of the workday. Do not eat, drink or smoke when using.

**Engineering Controls:**

In the event the polymer is heated above 150C (302F), local ventilation should be used to avoid exposure to fumes. Use ventilation to avoid exposure of personnel to dust.

**Occupational exposure limits of decomposition products:**

Components	CAS-No.	Value type (form of exposure)	Control parameters/ Permissible concentration	Basis
Hydrofluoric acid	7664-39-3	TWA	3 ppm 2.5 mg/m <sup>3</sup>	NIOSH REL



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		C	6 ppm 5 mg/m <sup>3</sup>	NIOSH REL
		TWA	3 ppm	OSHA Z-2
		TWA	0.5 ppm (Fluorine)	ACGIH
		C	2 ppm (Fluorine)	ACGIH
Carbonyl difluoride	353-50-4	TWA	2 ppm	ACGIH
		STEL	5 ppm	ACGIH
		ST	5 ppm 15 mg/m <sup>3</sup>	NIOSH REL
		TWA	2 ppm 5 mg/m <sup>3</sup>	NIOSH REL
Carbon dioxide	124-38-9	TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
		TWA	5,000 ppm 9,000 mg/m <sup>3</sup>	OSHA Z-1
		TWA	5,000 ppm 9,000 mg/m <sup>3</sup>	NIOSH REL
		ST	30,000 ppm 54,000 mg/m <sup>3</sup>	NIOSH REL
Carbon monoxide	630-08-0	TWA	25 ppm	ACGIH
		TWA	35 ppm 40 mg/m <sup>3</sup>	NIOSH REL
		C	200 ppm 229 mg/m <sup>3</sup>	NIOSH REL
		TWA	50 ppm 55 mg/m <sup>3</sup>	OSHA Z-1

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Tubing
Color	: Clear (May develop Brown-ish tint with UV exposure)
Odor	: Odorless
Odor Threshold	: No data available
pH	: Not applicable
Melting point/freezing point	: >200 °C
Initial boiling point/boiling range	: No data available
Flash point	: Not applicable
Evaporation rate	: Not applicable
Flammability (solid, gas)	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Upper flammability limit	: No data available
Lower flammability limit	: No data available



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Vapor pressure	: Not applicable
Relative vapor density	: Not applicable
Solubility(ies)	: No data available
Autoignition temperature	: No data available
Decomposition temperature	: >150°C
Viscosity, kinematic	: Not applicable
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Particle size	: No data available

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#### SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under normal storage conditions.
Possible hazardous reactions	: Hazardous decomposition products will be formed at elevated temperatures
Conditions to avoid	: Excessive heat
Incompatible materials	: No data available.
<b>Hazardous decomposition products</b>	
Thermal decomposition	: Hydrofluoric acid Carbonyl difluoride Carbon dioxide Carbon monoxide

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#### SECTION 11. TOXICOLOGICAL INFORMATION

##### Information on likely routes of exposure

Skin contact, Ingestion, Eye contact.

##### Respiratory or skin sensitization

###### Skin sensitization

Not classified based on available information.

###### Respiratory sensitization

Not classified based on available information.

###### Germ cell mutagenicity

Not classified based on available information.

###### Carcinogenicity

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

###### Reproductive toxicity

Not classified based on available information.

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**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Aspiration toxicity**Not classified based on available information.

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Other adverse effects**No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

- Waste from residues : Dispose of in accordance with local regulations.
- Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
If not otherwise specified: Dispose of as unused product.
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**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

Not regulated as a dangerous good

**IATA-DGR**

Not regulated as a dangerous good

**IMDG-Code**

Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation****49 CFR**Not regulated as a dangerous good

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**SECTION 15. REGULATORY INFORMATION****EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

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This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards**            :    No SARA Hazards

**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.

**US State Regulations**

**Pennsylvania Right To Know**

Perfluorosulfonic acid polymer

Trade secret

**California Prop. 65**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**SECTION 16. OTHER INFORMATION**

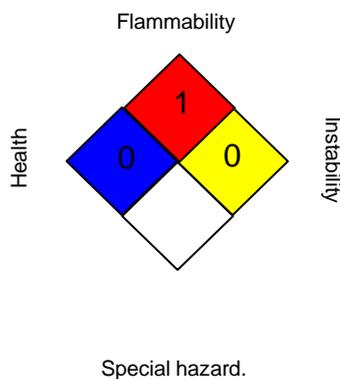
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Before use read Perma Pure safety information.

For further information contact the local Perma Pure office or nominated distributors.

All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

**NFPA 704:**



**HMIS® IV:**

<b>HEALTH</b>	/	0
<b>FLAMMABILITY</b>		1
<b>PHYSICAL HAZARD</b>		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

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Sources of key data used to compile the Material Safety Data Sheet: Internal technical data, data from raw material SDSs, and European Chemicals Agency <http://echa.europa.eu/>

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.