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RE: Material Safety Data Sheet (MSDS) for OpenTex-TR Non-Resorbable PTFE Membrane

OpenTex-TR Non-Resorbable PTFE Membrane is not considered to be or to contain hazardous chemicals based on evaluations made by Purgo Biologics Inc. with following MSDS of each raw material.

- PTFE sheet
- Titanium stripe

Sincerely,]

Completed by / Date



Hana Jung/2017.06.12

Safety Data Sheet

PTFE Extruded Unfilled Natural

Section 1. Identification

Product Identifier	PTFE Extruded Unfilled Natural
Synonyms	Tubing; Beading; Special; Monofilament
Manufacturer Stock Numbers	N/A
Recommended use	This product is an article produced to customer specifications for various uses.
Uses advised against	N/A
Manufacturer Contact Address	

Phone

Emergency Phone

Fax

Section 2. Hazards Identification

Classification	N/A
Signal Word	
Pictogram	
Hazard Statements	N/A
Precautionary Statements	
Response	N/A
Prevention	N/A
Storage	N/A
Disposal	N/A
Ingredients of unknown toxicity	0%
Hazards not Otherwise Classified	This SDS was prepared for an article which by OSHA standards is non-hazardous. There may be pertinent information within this document that applies to specific circumstances however the product as is has no hazardous properties and has no

known significant health effects expected under normal use and conditions.

No Data Available

Section 3. Ingredients

CAS	Ingredient Name	Weight %
9002-84-0	Polytetrafluoroethylene	99.9% - Min

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-Aid Measures

Inhalation	Not an expected route of exposure. If exposed to fumes from overheating or combustion, remove to fresh air. Keep warm and at rest. If breathing has stopped, give artificial respiration. Call a physician.
Skin Contact	This product is not likely to be hazardous, but cleanse skin after use. If contact with hot material occurs, immediately cool with plenty of cold water. Have burn treated by a physician.
Ingestion	Not an expected route of exposure.
Eye Contact	Rinse with water for 15 minutes. Remove contact lenses if present and easy to do. If eye irritation persists, get medical attention.

Section 5. Fire Fighting Measures

Suitable Extinguishing Media	Water spray, dry chemical, foam, or carbon dioxide.
Unsuitable Extinguishing Media	None
Fire Fighting Procedures	Keep personnel removed and upwind of fire. Wear a self-contained breathing apparatus and full protective equipment. Wear neoprene gloves when handling refuse from a fire.
Additional Information	Hazardous decomposition products including carbon dioxide, carbon monoxide, hydrogen fluoride, toxic gases, or particles may be formed during combustion. These products may cause severe eye, nose, throat, and lung irritation or toxic effects.

Section 6. Accidental Release Measures

Containment & Clean-Up	Contain spill. Mechanically collect by sweeping and shoveling. Transfer to properly labeled containers for recycling or disposal.
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Section 7. Handling and Storage

Precautions	Store away from extreme heat. Do not crush.
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Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits	Ingredient Name	ACGIH TLV	OSHA PEL	STEL
	Polytetrafluoroethylene	N/A	15 mg/m3	N/A
Personal Protective Equipment	Goggles, Gloves, Respirator			
Skin	Wear appropriate gloves when handling heated material to prevent thermal burns.			
Eye Protection	Wear safety glasses with side shields when cutting or grinding.			
Clothing	Wear protective clothing and boots as required.			
Respiratory	If thermal decomposition occurs, a NIOSH approved mask for acidic gases must be used to avoid inhalation of vapors in accordance with OSHA regulations.			

Section 9. Physical and Chemical Properties

Physical State	Solid
Color	Translucent Clear
Odor	Odorless
Odor Threshold	N/A
Solubility	Insoluble
Partition coefficient Water/n-octanol	N/A
VOC%	N/A
Viscosity	N/A
Specific Gravity	2.2
Density lbs/Gal	N/A
Pounds per Cubic Foot	N/A
Flash Point	None
FP Method	N/A
Ph	N/A
Melting Point	327-342 C
Boiling Point	Not Applicable
Boiling Range	N/A
LEL	N/A
UEL	N/A
Evaporation Rate	N/A
Flammability	N/A
Decomposition Temperature	N/A
Auto-ignition Temperature	N/A
Vapor Pressure	N/A
Vapor Density	N/A

Section 10. Stability and Reactivity

Stability	Stable at room temperature under normal storage and handling conditions.
Stability & Reactivity	Hazardous polymerization will not occur.

Section 11. Toxicological Information

Acute Toxicity	No adverse effects observed.
Skin Effects	No irritant effects anticipated.
Eye Effects	No irritant effects anticipated.
Sensitization	No sensitizing effects known.
Additional Information	When heated for a long time, a very small quantity of hydrogen fluoride, carbonyl fluoride, and perfluoroisobutylene is generated. The higher the temperature above 380 C, the larger the amount it will release. Hydrogen fluoride and carbonyl fluoride may cause the following symptoms: burning sensation, cough, dizziness, headache, labored breathing, nausea, shortness of breath, sore throat, vomiting. Symptoms may be delayed. Inhalation of this gas may cause lung oedema. Perfluoroisobutylene may cause the following symptoms: irritated respiratory tract. Inhalation of this gas may cause lung oedema. The effects may be delayed. Medical observation is indicated.

Section 12. Ecological Information

General Notes	Significant ecological effects are not expected under normal use.
Ecotoxicity	Ecotoxicity is expected to be low.
Degradation	This product may not degrade significantly in most natural environments.

Section 13. Disposal

Waste Treatment Methods	Recycling is preferred. Where recycling is not possible, dispose of in accordance with all local and national regulations.
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Section 14. Transport Information

UN Number	N/A
UN Proper Shipping Name	N/A
DOT Classification	N/A
Packing Group	N/A
Additional Information	Not classified as hazardous or dangerous for means of transport.

Section 15. Regulatory Information

Classification	This product is not classified as hazardous.
TSCA	The components of this product are in compliance with the chemical notification requirements of TSCA.
EIECS	All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances, or are exempt polymers whose monomers are listed.

Section 16. Other Information

Revision Date

9/30/2014

Additional Information

The information in this Safety Data Sheet is believed to be correct as of the date issued. Products makes no warranties, expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose or course of performance or usage of trade. User is responsible for determining whether the product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for the user's method of use or application.

Issue date: 2011/01/01
 Revision Date : 2016/04/01

PRODUCT INFORMATION SHEET

NOTE : This product is an “article” and is not an object that is required to issue Material Safety Data Sheet (MSDS) by laws/regulations regarding chemical substances.
 This Product Information Sheet offers necessary information for safe handling and the responsible concern for the environment.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Cold rolled titanium strips
Manufacturer	
Address	
Contact Dept.	Quality Assurance Department.
Person in Charge	
Telephone No.	
Facsimile No.	
Urgent report telephone number	It is the same as the telephone No.
Limitation in recommended usage and use	Raw material of metalworking products.

2. HAZARDS IDENTIFICATION

GHS classification	The product does not have danger of the general handling and the information of the harmful property for a safe solid. However, pay attention to vapor and dust to be occur from the process of melting welding, cutting and grinding. Note the laceration when you come in contact with the product. There is a possibility of igniting when the flame comes in contact with dust and cut powder. Note that dust and steam might stimulate eyes and respiratory organs. (When welding or cutting.)
About harmfulness of the danger	
A harmful property of the health	
Hazardous property of environment	
GHS label display	There is no information about the product. It doesn't suit.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical name	Cold rolled titanium strips
Single or compound	TR270C
Chemical composition (mass%)	Single substance
	H: less than 0.013% (CAS No.1333-74-0)
	O: less than 0.15% (CAS No.7782-44-7)
	N: less than 0.03% (CAS No.7727-37-9)
	Fe: less than 0.20% (CAS No.7439-89-6)
	C: less than 0.08% (CAS No.7440-44-0)
	Ti: Balance (CAS No.7440-32-6)

Official Gazette Ref. No.(Safety Sanitation Law) Japan Industrial Standard Classification	Not specified. JIS-H-4600
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4. FIRST AID MEASURES

Please undergo an appropriate diagnosis and treatment from the doctor after the stop-gap measure.	
In case of laceration	Wash by clear water and sterilize.
In case of inhaled	Do the breath assistance.
In case of eye contact	Wash with enough clear water.

5. FIRE FIGHTING MEASURES

Measures	No danger for fire and explosion as solid metal material.
Dangerous extinguishing media	There is no danger of the explosion as the product. However, the powder has the possibility of causing the explosion.

6. ACCIDENTAL RELEASE MEASURES

Measures	No regulation as solid metal material.
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7. HANDLING AND STORAGE

Technical measures	There is no technical measure as this material. When the powder of material occur in a process, the sealing up of the device and local ventilation are necessary. When dust has been generated, the regional ventilation and the general ventilation are done. In case of heavy product, it is necessary to be attentive to fall accident. Wear the protective equipment described in "8. <u>EXPOSURE CONTROLS / PERSONAL PROTECTION</u> " to prevent the laceration when you touch the product. Wear the protective equipment described in "8. <u>EXPOSURE CONTROLS / PERSONAL PROTECTION</u> " when you generate dust and steam by welding and cutting. See "10. <u>STABILITY AND REACTIVITY</u> ".
Local exhaust · General ventilation	
Safety treatment notes	
Contact evasion	There is no problem because it is the product. Oxidizing substance and water. Keep it in a dry area. Keep it in the area where acid, alkali, high humidity, and water leak occurrence area was avoided. Wrap it by packing of materials.
Storage	
Technical Measures	
Contact prohibition substance	
Notes of storage	
Packaging material	

8. EXPOSURE CONTROLS /PERSONAL PROTECTION

Permissible concentration	Not prescribed as the product.
Equipment measures	It doesn't correspond as the product. However, follow the explanation of "7. <u>HANDLING AND STORAGE</u> " when dust and steam are generated.
Personal protection	
Hand protection	Put on gloves when touching by hand.
Respiratory organs	Wear the dust mask when dust is generated.
Eye protection	Wear the dust goggles when dust is generated.
Skin and body protection	Wear the protection wear ,the protective equipment,the safety shoes of the face when coming in contact with the skin and the body.

9. PHISICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Form	Metallic luster.
Odor	Odorless
pH	None
Melting point	1668°C
Flash point and fire point	None
Explosion characteristic	None
Vapor pressure	None
Steam density (Air=1)	Data none
Specific gravity	4.51
Solubility	Not soluble in water. Soluble in acid.
Partition coefficient n-octanol/water	It doesn't correspond.

10. STABILITY AND REACTIVITY

Stability	It stabilizes under normal environment, and the reactiveness is few.
Dangerous, harmful reaction	It becomes easy to generate rust if coming in contact with water and the oxidizing substance. There is a possibility of the dust explosion when the powder mixes it with air.
Condition to avoid	Contact of water and oxidizing substance.
Substance dangerous when mixing	Air contact by powder.
Hazardous decomposition products	Contact of water and oxidizing substance.
	Air contact as powder.
	Not applicable.

11. TOXICOLOGICAL INFORMATION

Toxicological information is none in the product.

12. ENVIRONMENTAL INFLUENCE INFORMATION

There is no information for the product.

13. DISPOSAL CONSIDERATIONS

Follow federal, state, and local regulations regarding disposal.

14. TRANSPORT INFORMATION

Cover the product in the covering when you transport it to prevent damage and rain water.	
The united nations number	It doesn't correspond.
International classification	It doesn't correspond.

15. REGULATORY INFORMATION

Not applicable as the product. Regulations each element of this product described.	
CHEMICAL ELEMENT	EINECS NUMBER
H	215-605-7
O	231-956-9
N	231-783-9
Fe	231-096-4
C	231-153-3
Ti	231-142-3

16. ADDITIONAL INFORMATION

The information relates to this specific material. It may not be valid for this material, infused in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his own particular use.
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