

**I – Identification of the Substance and of the Company**

SUPPLIER: RMO, Inc.
650 W. Colfax Ave.
Denver, CO 80204
303-592-8200

Trade Name and Synonyms –
Polytetrafluoroethylene (PTFE)
Description: Aesthetic arch wire coating

Emergency Information Chemtrec: 800-424-9300
Chemtrec International: 202-483-7616

Product Grade / Name:
Chemical Name: Polytetrafluoroethylene

II – Composition / Information on Ingredients

<u>Material</u>	<u>CAS</u>	<u>Composition</u>
Polytetrafluoroethylene	9002-84-0	100%

III – Hazards Identification

Emergency Overview: This material when properly handled according to good working and hygienic practices is not dangerous to human health and the environment. Toxic gasses may be released at room temperatures of 400° C (752° F) and above. For short and long term exposure effects see Section 11 Toxicological Data.

Eye Effects: No effects requiring first aid are expected during normal use. Eye contact with thermal decomposition products causes redness, irritation, and burns.

Skin Effects: No effects requiring first aid are expected during normal use. Skin contact with thermal decomposition products causes redness, irritation, and burns.

Ingestion / Oral Effects: No effects requiring first aid are expected during normal use.

Inhalation Effects: No effects requiring first aid are expected during normal use.

Inhalation of thermal decomposition products causes headaches, short breathing, cough, chills, fever, and tachycardia (polymer fume fever).

Medical Conditions Aggravated by Exposure: None anticipated during normal use.

Fumes produced at elevated temperatures may aggravate pre-existing eye, skin, and respiratory conditions.

IV – First Aid Measures

Eyes: In case of contact with thermal decomposition products, flush the eyes immediately and continuously with cold running water. Seek immediate medical assistance.*

Skin: In case of contact with thermal decomposition products, immediately flush the skin with cold running water to cool it. Remove contaminated clothing. Do not attempt to remove molten polymer from the skin. Cover burns with sterile dressings. Seek immediate medical assistance.*

Inhalation: In the case of inhalation of thermal decomposition, move the patient to fresh air and keep the patient warm. If breathing problems occur, a qualified individual should administer oxygen or artificial respiration. Seek immediate medical assistance.*

Ingestion: No effects requiring first aid are expected during normal use. In case of ingestion/oral contact with thermal decomposition products, give several glasses of water to drink. Do not induce vomiting. Seek immediate medical assistance.*

Other Information: * In all cases of exposure to thermal decomposition products of PTFE, seek immediate medical assistance, indicating that hydrofluoric acid and toxic gases are decomposition products, Note that symptoms may not appear until some hours after inhalation of decomposition products.

V – Fire Fighting Measures

Extinguishing Media: Water, foam, dry powder or carbon dioxide. Extinguishing material and fire remnants must be safely disposed of: See Section 13 – Disposal Considerations.

Fire and Explosion Hazard: When exposed to temperatures above 400° C (752° F) PTFE can decompose to produce toxic and corrosive substances: See Section 10.

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 in full turn out gear. Wear eye/skin protection adequate to protect from thermal decomposition products. Use acid resistant protective clothing (capable of resisting hydrofluoric acid) to handle cool parts containing decomposes PTFE.

Flammability Properties: See Section 8

VI – Accidental Release Measures

No material specific actions are required. Collect the spilled material and reuse or dispose as in Section 13.

VII – Handling and Storage

Handling: No special precautions are required during normal use.

Storage: Store in a cool, well ventilated space away from direct sunlight, inflammable materials and sources of ignitions.

VIII – Exposure Controls / Personal Protection

Exposure Limits:

Ingredient	ACGIH-TLV	OSHA-PEL	Occupational Exposure Limits EH40 (UK)
PTFE	None*	None	Thermal decomposition products – maximum exposure-2.6 mg/m ³

*ACGIH recommends PTFE decomposition products be quantitatively determined in air as fluoride to provide an index of exposure. Although no TLV is recommended, ACGIH states, "Air concentration should be controlled as low as possible."

Threshold Limits of Decomposition Products: ACGIH 1999/00:
 Hydrogen fluoride: 3 ppm (Ceiling) ACGIH TLV; 3ppm OSHA PEL
 Carbonyl fluoride: 2 ppm (TWA) ACGIH TLF; 5 ppm (Ceiling)

Personal Protection:

Engineering Measures: None required under normal conditions of use.

Respiratory Protection: None required under normal conditions of use.

Hand/Skin Protection: None required under normal conditions of use

Eye/Face Protection: None required under normal conditions of use.

Hygiene Measures: Practice food workplace hygiene. Do not eat or smoke when handling. Wash hands after handling and before eating and smoking.

Other/General Protection: None required under normal conditions of use.

IX – Physical and Chemical Properties

Appearance & Odor	White, no odor	Boiling Point	No Data	°C/°F
pH (as supplied)	No data	Melting point	327/620	°C/°F
Solubility in Water	Insoluble	Auto Ignition	>500/932	°C/°F
Volatile Content by Volume	No data	Flash Point	No data	°C/°F
Specific Gravity	0.3-0.6			
Vapor Pressure (mbar)	No data	Vapor Pressure (mbar)	No data	

X – Stability and Reactivity

Stability:

Unstable () Stable (X)

Conditions to Avoid: Flames or high temperatures.

Hazardous Decomposition: When exposed to temperatures above 400°C (752°F) PTFE can be decomposed to produce toxic gasses predominantly carbon dioxide, carbon monoxide, hydrofluoric acid, tetrafluorethylene, hexafluoropropylene, perfluoroisobutylene, carbonyl fluoride, and other low-molecular fluorohydrocarbons.

Hazardous Polymerization: Will not occur.

XI – 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 3 Hazards Identification.

Animal Data:

LD50 Value: No data available.

LC50 Value: 3500 mg/m³ at 626°C or 2700 mg/m³ at 800°C. Refer to pyrolysis products of PTFE.

Carcinogenicity: No known carcinogenic effects.

Toxicity Information for PTFE Decomposition Products:

Inhalation: PTFE decomposition products vary widely in toxicity in experimental animals. Four hour LC50s (inhalation) for decomposition products range from 0.76 ppm (perfluoroisobutane) to 40,000 ppm (tetrafluoroethylene monomer). Workers exposed to PTFE fumes produced at 350-380°C (temperatures associated with liberation of hexafluoroethane, perfluoroisobutylene and octafluorocyclobutene) exhibited symptoms consistent with polymer fume fever at workplace air concentrations of 3.5 mg/m³ compounds containing fluorine.

Chronic: Repeated episodes of polymer fume fever may damage lungs.

XII – Ecological Information

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

XIII – Disposal Considerations

Uncontaminated material can be recycled. The material must be properly contained. Dispose of at approved landfill sites, or by high temperature incineration, using licensed contractors. Water or other substances used to extinguish a fire containing the materials, together with the fire remains, must be collected and be suitably disposed of. Disposal must be in accordance with local authority and national regulations.

XIV – Transportation Information

Technical Shipping Name: Polytetrafluoroethylene (PTFE)

The product is not classified as dangerous under transport regulations.

Freight Class Bulk: N/A

Freight Class Packaged: N/A

Product Label: N/A

Hazard Class or Division: Non-Hazardous

Hazard Class or Division Number: Not Hazardous by D.O.T. Regulations.

XV – Regulatory Information

European Regulatory Information:

This product has been classified in accordance with the Dangerous Substances Directive (67/548/EEC, as amended) and the Preparations Directive (83/379/EEC), as amended, implemented in the UK as the Chemical (Hazard Information and Packing) Regulations 1994 (CHIP, as amended).

Classified as Dangerous to Supply: No

Risk Phrases: Not applicable

Safety Phrases: Not applicable

Symbols: None

United States Regulatory Information:

All materials contained in this product are listed on the U.S. Toxic Substances Control Act (TSCA).

SARA TITLE III SECTION 313 SUPPLIER INFORMATION: This product does not contain toxic chemicals subjected to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 and 40 CFR Part 372.

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

Canadian Regulatory Information: WHMIS Classification: Not applicable. All ingredients contained in this product are included on the Canadian DSL.

XVI – Other Information

Note: While the information and recommendations set forth on this data sheet are believed to be accurate as received from our suppliers, RMO, Inc. makes no warranty with respect thereto and disclaims all liability from reliance thereon.