

MATERIAL SAFETY DATA SHEET

ICORALLY

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PTFE FLUOROPOLYMER TUBING

SECTION 1 - - PRODUCT INFORMATION

MANUFACTURER'S NAME: INSULATION SOURCES, INC DBA ICO RALLY
COMPANY PHONE NUMBER: 650-856-9900
CHEMICAL NAME: PTFE (Polytetrafluoroethylene) tubing
SYNONYMS: PTFE
CHEMICAL FAMILY: Fluorocarbon polymer
MAJOR APPLICATIONS: Tubing, pipe, related products

SECTION 2 - - INGREDIENTS / IDENTITY INFORMATION

COMPONENTS	CAS NUMBER	OSHA PEL	TCA LISTED
Polytetrafluoroethylene	9002-84-0	Not listed	Listed

SECTION 3 - - HAZARDOUS INGREDIENTS

COMPONENTS	CAS NUMBER	%
Polytetrafluoroethylene	9002-84-0	100

Heated above 400 deg C (750 deg F) can evolve as degradation products:

Hydrogen fluoride	7664-39-3	<1
Carbonyl fluoride	353-50-4	<1

Remarks

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

SECTION 4 - - PHYSICAL DATA

BOILING POINT Not applicable
MELTING POINT 327-372 deg C (621-648 deg F)
SPECIFIC GRAVITY (H₂O=1) 2.13-2.20 at 25 deg C
VAPOR PRESSURE (mm Hg) Not applicable
VAPOR DENSITY (Air=1) Not applicable
EVAPORATION RATE (Butyl acetate=1) Not applicable
SOLUBILITY IN WATER Insoluble
APPEARANCE AND ODOR Translucent to milky-white tubing or related product: no odor

SECTION 5 - - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT, METHOD 530-550 deg C (986-1022 deg F), ASTM D1929
SELF IGNITION TEMPERATURE, METHOD 520-560 deg C (968-1040 deg F), ASTM D1929
UL-94 FLAMMABILITY RATING V-0
LIMITING OXYGEN INDEX, METHOD >95, ASTM D 2863
EXTINGUISHING MEDIA Water, foam, dry chemical, CO₂, as appropriate for surrounding fire.
SPECIAL FIRE FIGHTING PROCEDURES Wear self-contained breathing apparatus. Wear full protective equipment.

MSDS PTFE Continued

UNUSUAL FIRE AND EXPLOSION HAZARDS Products will emit toxic fumes at high temperatures.

Does not burn without an external flame. Protect from hydrogen fluoride fumes which react with water to form hydrofluoric acid. Wear neoprene gloves when handling refuse from a fire involving PTFE (Polytetrafluoroethylene).

Difficult to ignite, and flame goes out when initiating source is removed (UL-94). Limited flame spread and low smoke generation (NFPA 262-1990, UL-910). Complies with NFPA definition of "limited combustible" material. High self-ignition and auto-ignition temperatures (ASTM D1929).

Hazardous gases/vapors produced in a fire are hydrogen fluoride (HF), carbon monoxide, and potentially toxic fluorinated compounds.

SECTION 6 - - HEALTH HAZARD DATA

ACUTE EFFECTS OF EXPOSURE

INGESTION	Harmless.
EYE CONTACT	May cause eye irritation.
SKIN CONTACT	Does not irritate human skin.
INHALATION	Inhalation of fumes from overheating (above 300 deg C/572 deg F) PTFE (Polytetrafluoroethylene) may cause polymer fume fever, a temporary flu like illness with fever, chills, and sometimes cough, of approximately 24 hours duration. Trace amounts of carbonyl fluoride and hydrogen fluoride may also be evolved when PTFE is overheated or burned above 400 deg C (750 deg F).

Inhalation of low concentrations of HYDROGEN FLUORIDE can initially include symptoms of choking, coughing, and severe eye, nose, and throat irritation. This is possibly followed after a symptomless period of one to two days by fever, chills, difficulty in breathing, cyanosis, and pulmonary edema. Acute or chronic overexposure to HF can injure the liver and kidneys.

Inhalation, ingestion, or skin or eye contact with CARBONYL FLUORIDE may initially include: skin irritation with discomfort or rash; eye corrosion with corneal or conjunctival ulceration; irritation of the upper respiratory passages; or temporary lung irritation effect with cough, discomfort, difficulty in breathing, or shortness of breath.

Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures from thermal decomposition products.

CARCINOGENICITY	NTP: Not listed	IARC: Not listed	OSHA: Not listed
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EMERGENCY AND FIRST AID PROCEDURES

INHALATION	No specific intervention is indicated as the PTFE TUBING is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed from fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.
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SKIN CONTACT	The PTFE TUBING is not likely to be hazardous by skin contact.
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EYE CONTACT	In case of contact, immediately flush eyes with plenty of water and get medical attention if irritation occurs.
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INGESTION	No specific intervention is indicated as the PTFE TUBING is not likely to be hazardous by ingestion. If gastrointestinal symptoms develop, get medical attention.
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MSDS PTFE Continued

PERSONAL PROTECTION

RESPIRATORY Where the material temperature is above 300 deg C (572 deg F), use a positive pressure supplied air respirator.

EYE PROTECTION Not normally required.

PROTECTIVE CLOTHING Not normally required.

OTHER PROTECTIVE EQUIPMENT Not applicable.

VENTILATION Provide local exhaust if PTFE TUBING is heated above 300 deg C (572 deg F)

SECTION 7 - - REACTIVITY DATA

STABILITY Stable Unstable

INCOMPATIBILITY (MATERIALS TO AVOID) Molten alkali metals and interhalogen compounds.

HAZARDOUS DECOMPOSITION PRODUCTS When heated above 300 deg C (572 deg F), may cause evolution of particulate matter, which can cause polymer fume fever. When heated above 400 deg C (750 deg F), small amounts of hydrogen fluoride and perfluorohydrocarbons such as tetrafluoroethylene, hexafluoropropylene, perfluoroisobutylene, and carbonyl fluoride may be evolved.

HAZARDOUS POLYMERIZATION May occur Will not occur

SECTION 8 - - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE

MATERIAL IS RELEASED OR SPILLED Recover undamaged material, clean as needed, and reuse.

WASTE DISPOSAL METHOD Preferred methods for disposal are recycling and landfill.
With incineration, gaseous products should be removed by alkaline scrubbing.
Separate waste of this material from others and comply with Federal, State, and Local regulations concerning health and environment.

SECTION 9 - - SPECIAL PRECAUTIONS OR OTHER COMMENTS

PRECAUTIONS TO BE TAKEN

IN HANDLING AND STORAGE Above 275 deg C (527 deg F), PTFE TUBING can evolve toxic gaseous products. Provide good ventilation or respirator if there exists a probability of exceeding 260 deg C.

ADDITIONAL INFORMATION None

SECTION 10 - - SUPPLIER INFORMATION

DISCLAIMER

To the best of our knowledge the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy or completeness of such information. We strongly recommend that users seek and adhere to the manufacturer's or supplier's current instructions for handling each material they use and they satisfy themselves that they can meet all applicable safety and health standards.

END OF MSDS