



IDENTIFICATION

PRODUCT (TRADE) NAME: PFA Teflon* Coated Thermowells
CHEMICAL FAMILY: Teflon* PFA Fluorocarbon Resin

SUPPLIER: OMEGA ENGINEERING INC.
PO BOX 4047
STAMFORD, CT 06907

DATE PREPARED: 6/24/91
SUPERSEDES: None

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COMPONENTS

Material	CAS Number	%
TETRAFLUOROETHYLENE-PERFLUORO (PROPYL VINYL ETHER) COPOLYMER (TFE-PPVE COPOLYMER)	26655-00-5	100
Heated above 400 deg C (750 deg F) can evolve:		
Hydrogen fluoride as a degradation product	7664-39-3	<1
Carbonyl fluoride as a degradation product	353-50-4	<1

PHYSICAL DATA

Melting Point : 302 TO 310 deg C (576 to 590 deg F)
%Volatiles : NA
Water Solubility : Insoluble
Odor : None
Form : Coating
Color : Translucent
Specific Gravity : 2.1-2.2

HAZARDOUS REACTIVITY

Instability : Stable at normal temperatures and storage conditions. Reacts with molten alkali metals and interhalogen compounds.

Incompatibility : None reasonably foreseeable.

HAZARDOUS DECOMPOSITION PRODUCTS: Heating above the melting point, or prolonged heating above 260 deg C (500 deg F), may cause evolution or particulate matter, which can cause polymer fume fever (see HUMAN HEALTH EFFECTS below). Trace amounts of hydrogen fluoride and carbonyl fluoride may be evolved at about 400 deg C (750 deg F), with larger amounts at higher temperatures.

FIRE AND EXPLOSION DATA

Flash Point : Does not flash
Method : Open cup
Not a fire and explosion hazard.

"Teflon" PFA will burn in an atmosphere of 95% oxygen when an ignition source is present.

FIRE AND EXPLOSION HAZARDS

Hazardous gases/vapors produced in fire are hydrogen fluoride (HF), carbonyl fluoride, carbon monoxide and low molecular weight fluorocarbons.

EXTINGUISHING MEDIA

Water. Foam. Dry Chemical. CO₂.

SPECIAL FIRE FIGHTING INSTRUCTIONS

Does not burn without an external flame. Wear self-contained breathing apparatus and clothing to protect from hydrogen fluoride fumes which react with water to form hydrofluoric acid. Wear neoprene gloves when handling refuse from a fire involving "Teflon".

HEALTH HAZARD INFORMATION

"Teflon" fluorocarbon resins are not hazardous as shipped. The primary hazard associated with these resins is the inhalation of fumes from overheating or burning, which may cause "polymer fume fever" (see HUMAN HEALTH EFFECTS below).

*Teflon is a registered trademark of Dupont.

MSDS-0161(CON'T)

TFE-PPVE COPOLYMER (TEFLON PFA)

Oral LD50: >11,000 mg/kg in rats

Inhalation: The effects in animals from single exposure to thermal decomposition products include congestion, edema, and hemorrhage of the lungs.

Ingestion: Administration of oral doses equivalent to the LD50 produced body weight losses, congestion and other nonspecific effects. Repeated dietary administration (25% TEFLON PFA) resulted in liver and testicular changes. However, a subsequent oral feeding study at the same and a lower dose (10% TEFLON PFA) did not reproduce any effects.

HUMAN HEALTH EFFECTS OF OVEREXPOSURE TO TEFLON PFA:

Prolonged skin contact may cause skin irritation with discomfort or rash. Significant skin permeation after contact appears unlikely. There are no reports of human sensitization. Small amounts of carbonyl fluoride and hydrogen fluoride may also be evolved when TEFLON PFA is overheated or burned. Inhalation of fumes from burning TEFLON PFA may cause polymer fume fever, a temporary flu-like illness with fever, chills, and sometimes cough, or approximately 24 hours duration. Smokers should avoid contamination of tobacco products, and should wash their hands before smoking.

Inhalation of low concentrations of HYDROGEN FLUORIDE can initially include symptoms of choking, coughing, and severe eye, nose, and throat irritation. Possibly followed after a symptomless period of 1 to 2 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 effects with cough, discomfort, difficulty breathing, or shortness of breath. By analogy with phosgene, symptoms may be delayed.

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

CARCINOGENICITY

None of the components in this material is listed by IARC, NTP, OSHA, or ACGIH as a carcinogen.

EXPOSURE LIMITS

TLV (ACGIH) : None Established
PEL (OSHA) : Particulates Not Otherwise Regulated
15 mg/m³ - 8-Hr TWA - Total Dust
5 mg/m³ - 8-Hr TWA - Respirable Dust

OTHER APPLICABLE EXPOSURE LIMITS

TETRAFLUOROETHYLENE-PERFLUORO (PROPYL VINYL ETHER)

AEL * (DuPont) : 10 mg/m³ - 8-Hr TWA, Total Dust
5 mg/m³ - 8-Hr TWA, Respirable Dust
TLV (ACGIH) : None Established
PEL (OSHA) : None Established

Hydrogen fluoride as a degradation product

AEL * (DuPont) : 3 ppm - 15 minute TWA
TLV (ACGIH) : 3 ppm, 2.6 mg/m³ (ceiling), as F
PEL (OSHA) : 3 ppm - 8-Hr TWA, STEL 6 ppm as F

Carbonyl fluoride as a degradation product

AEL * (DuPont) : None Established
TLV (ACGIH) : 2 ppm, 5.4 mg/m³ - 8-Hr TWA STEL 5 ppm, 13 mg/m³
PEL (OSHA) : 2 ppm, 5 mg/m³ 8-Hr TWA STEL 5 ppm, 15 mg/m³

*AEL is DuPont's Acceptable Exposure Limit.

SAFETY PRECAUTIONS

See FIRST AID and PROTECTION INFORMATION SECTION

-----FIRST AID-----

INHALATION

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

SKIN CONTACT

The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel polymer from skin. Obtain medical treatment for thermal burn.

EYE CONTACT

Flush eyes with plenty of water. Consult a physician if symptoms persist.

INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult physician if necessary.

-----PROTECTION INFORMATION-----

GENERALLY APPLICABLE CONTROL MEASURES AND PRECAUTIONS

VENTILATION: Use local exhaust to completely remove vapors and fumes liberated during hot processing from the work area.

OTHER: Avoid contamination of cigarettes or tobacco with polymer dust.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION: Wear safety glasses. Wear overall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material.

RESPIRATORS: A respirator is not required if local exhaust ventilation is adequate. At processing temperatures less than 400 deg C (750 deg F) a NIOSH/MSHA approved air purifying respirator with dust/mist cartridge or canister may provide protection from airborne particulates which cause polymer fume fever. At higher processing temperatures if ventilation is inadequate to maintain hydrogen fluoride and carbonyl fluoride concentrations below exposure limits, use a positive pressure air supplied respirator. Air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING: If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

-----DISPOSAL INFORMATION-----

AQUATIC TOXICITY: Not toxic.

SPILL, LEAK, OR RELEASE: NOTE: Review FIRE AND EXPLOSION HAZARDS AND SAFETY PRECAUTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.

Sweep up to avoid slipping hazard.

WASTE DISPOSAL: Preferred options for disposal are (1) recycling and (2) landfill. Incinerate only if incinerator is capable of scrubbing out hydrogen fluoride and other acidic combustion products. Treatment, storage, transportation and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

-----SHIPPING INFORMATION-----

DOT: Proper Shipping Name: Not regulated

-----STORAGE CONDITIONS-----

Keep containers closed to avoid contamination.

-----TITLE III HAZARD CLASSIFICATIONS-----

SECTION 313 SUPPLIER NOTIFICATION

This product contains no known toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

-----ADDITIONAL INFORMATION AND REFERENCES-----

TSCA INVENTORY STATUS : Reported/Included

NA = Not Applicable

NE = Not Established

= New or revised information in this section.

STATE RIGHT-TO-KNOW LAWS

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE: None known.

SUBSTANCES ON THE PENNSYLVANIA SPECIAL HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 0.01% OR MORE: None known.

NONHAZARDOUS INGREDIENTS PRESENT AT A CONCENTRATION OF 3% OR MORE REQUIRED TO BE LISTED BY PENNSYLVANIA: See page one.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER: None known.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: None known.

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): None known.

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