



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont
Material Safety Data Sheet

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"TEFZEL" ETFE FLUOROPOLYMERS ALL IN SYNONYM LIST TFZ004
DU004199 Revised 14-MAY-2005

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"TEFZEL" is a registered trademark of DuPont.

Tradenames and Synonyms

"TEFZEL" 200, 207, 210, 280,
"TEFZEL" HT2118, HT2141, HT2155,
"TEFZEL" HT2219, #

Company Identification

MANUFACTURER/DISTRIBUTOR
DUPONT FLUOROPRODUCTS
1007 MARKET STREET
WILMINGTON, DE 19898

PHONE NUMBERS

Product Information : 1-(800)441-7515
Transport Emergency : 1-(800)424-9300
Medical Emergency : 1-(800)441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
TETRAFLUOROETHYLENE-ETHYLENE COPOLYMER	68258-85-5	100

Heated above 350 deg C (662 deg F) can
evolve as degradation products:

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

Components (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.

HAZARDS IDENTIFICATION

Potential Health Effects

ADDITIONAL HEALTH EFFECTS

Before using read the Fluoropolymers Safe Handling Guide published by The Society of the Plastics Industry.

Inhalation of fumes from overheating ETFE may cause polymer fume fever, a flu-like illness with fever, chills and cough of approximately 24 hours duration. There are some reports in the literature of persistent pulmonary effects in individuals, especially smokers, who have repeated episodes of polymer fume fever. Because of complicating factors, such as mixed exposures and smoking history, these findings are uncertain. Protection against acute exposure should also provide protection against any potential chronic effects. Smokers should avoid contamination of tobacco products, and should wash their hands before smoking.

Eye contact with ETFE may cause mechanical eye irritation with discomfort, or tearing.

Processing this material above 270 degrees C (518 degrees F) can liberate hydrogen fluoride which may irritate the eyes, nose and throat.

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

Carcinogenicity Information

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.

FIRST AID MEASURES

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.

(FIRST AID MEASURES - Continued)

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Ignition Temperature	:	470C (878F)
Method	:	ASTM D1929
Self Ignition Temperature	:	510-515C (950-959F)
Method	:	ASTM D1929
UL-94 Flammability Rating	:	V-O
Limiting Oxygen Index	:	30
Method	:	ASTM D6283

Average time of burning (ATB) is less than 5 seconds and average length of burn (ALB) IS 10 MM (0.39 in) by ASTM D635 horizontal burn test.

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

Extinguishing Media

Water, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Hydrogen fluoride fumes emitted during a fire can react with water to form hydrofluoric acid. Wear neoprene gloves when handling refuse from fire.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spilled material is a slipping hazard.

Spill Clean Up

Recover undamaged and minimally contaminated material for reuse and reclamation. Shovel or sweep up.

HANDLING AND STORAGE

Handling (Personnel)

Avoid contamination of cigarettes or tobacco with dust from this material.

Handling (Physical Aspects)

Do not use a torch to clean this material from equipment without local exhaust ventilation and respirator.

Storage

Keep container closed to prevent contamination.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

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

Personal Protective Equipment

EYE/FACE PROTECTION

Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material.

RESPIRATORS

When temperatures exceed (662 deg F) 350 degrees C and ventilation is inadequate to maintain 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.

Exposure Guidelines

Exposure Limits

"TEFZEL" ETFE FLUOROPOLYMERS ALL IN SYNONYM LIST TFZ004

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

Hydrogen Fluoride

PEL (OSHA) : 3 ppm, 8 Hr. TWA, as F
TLV (ACGIH) : 0.5 ppm, 8 Hr. TWA, as F
Ceiling 2 ppm, as F
AEL * (DuPont) : 3 ppm, 15 minute TWA

Carbonyl Fluoride

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

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Melting Point : 255-280 C (491-536 F)
Solubility in Water : Insoluble
Odor : None
Form : Pellets
Color : Off-white translucent
Specific Gravity : 1.7

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Conditions to Avoid

Extended overheating (e.g., >400 degrees C or 752 degrees F for two hours) can result in autocatalytic degradation with "blow backs" through extruder feed hopper or barrel front.

Incompatibility with Other Materials

Incompatible or can react with finely divided metal powders (e.g., aluminum and magnesium) and potent oxidizers like fluorine (F₂) and related compounds (e.g., chlorine trifluoride, ClF₃). Contact with incompatibles can cause fire, an explosion.

(STABILITY AND REACTIVITY - Continued)

Decomposition

Small amounts of hydrogen fluoride (HF) may be evolved at about 350 deg C (662 deg F), with larger amounts at higher temperatures.

TOXICOLOGICAL INFORMATION

Animal Data

ETFE

Inhalation 4 hour LC50: ~7300 mg/m3 in rats

There was no skin irritation after dermal injection of extracts from ETFE into rabbits.

The effects in animals from a single inhalation exposure to high dust concentrations caused irregular respiration, body weight loss and other nonspecific effects.

No animal test reports are available to define carcinogenic, mutagenic, developmental, or reproductive hazards.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

No information is available. Toxicity is expected to be low based on insolubility in water.

DISPOSAL CONSIDERATIONS

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.

TRANSPORTATION INFORMATION

Shipping Information

DOT

Proper Shipping Name : Not regulated

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : In compliance with TSCA Inventory requirements for commercial purposes.

State Regulations (U.S.)

STATE RIGHT-TO-KNOW

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.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1 % OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES)- None known.

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- Tetrafluoroethylene.

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.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating	
Health	: 2
Flammability	: 1
Reactivity	: 0

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

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(Continued)

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS