

CULD ePTFE Properties

PTFE is a soft, waxy, opaque material that is nearly white in color. It is about 90% crystalline and has a molecular weight between 500,000 and 2,000,000. PTFE is polymerized from a monomer (a small molecule that combines with other monomers to yield a polymer called tetrafluoroethylene), which is produced through a series of chemical reactions. PTFE is inert to all solvents and chemical agents except molten alkali metals and hot fluorine gas. It is capable of withstanding continuous exposure to temperatures ranging from near zero, to where it begins to depolymerize above 600 °C (1112 °F). Because of its resistance of the strong C-F bonds to chemical attack, PTFE is an inert, tough, and nonflammable material widely used for electrical insulation.

Heat

PTFE retains its properties after exposure to temperatures beyond the limit of almost all other thermoplastics and elastomers. Depending on the end-use requirements, PTFE is rated for continuous service at temperatures as high as 500°F. It also can sustain short exposure at higher temperatures.

Flame Resistance

PTFE offers extraordinary resistance to high temperature and flames because it has a very high melting point and auto-ignition Temperature, as well as exceptional thermal degradation thresholds. PTFE's flame propagation characteristics, such as rate of heat release and smoke generation is very low Friction and Wear PTFE has one of the lowest coefficients of friction of any solid material. Its abrasions resistance is adaptable to demanding environments by using inorganic fillers, such as glass fiber, carbon or graphite.

Contamination

PTFE is chemically pure and inert. It contains no additives such as lubricants, stabilizers, plasticizers or antioxidants that can contaminate process fluids.

Adhesion/Release

PTFE has an extremely low surface energy in the solid state. This provides an excellent anti-stick, non-wetting contact surface. Conversely, when these resins are in a molten form, they become low surface- tension liquids, ideal for hot melt adhesives.

Low Temperature Service

retains its excellent properties even at cryogenic temperatures. PTFE's impact resistance at these temperatures exceeds that of most other polymers.

Corrosion

PTFE has excellent chemical resistance. It will resist most aggressive organic and inorganic chemicals, acids and solvents over a broad temperature range.

Service

PTFE exhibits excellent retention of properties after a long period of time, even at elevated temperatures and in the presence of oils, solvents, UV light, oxidizing agents and other environmental agents.

Light Stability

PTFE has one of the lowest refractive indexes. It does not change its visual appearance after exposure to ultraviolet or infrared light.

Dielectrics

PTFE has remarkable dielectric strength, low dielectric constant, low loss factors and high specific resistance. PTFE surpasses most material in its level and stability of dielectric properties over a wide range of environmental conditions.

Biodegradation

PTFE is inert to microbiological and enzymic attack because the pure polymer does not provide any nourishment or porosity for these growths.

Atmospheric Aging

PTFE is not affected by ultraviolet and is resistant to oxidation, discoloration, and embrittlement.

Humidity

PTFE is completely resistant to hydrolysis. PTFE is a good barrier for water permeation. Its typical properties and dimensional stability remain unchanged even after long periods of time in water.

MSDS: CULD Teflon PTFE**SECTION 1: Identification of the Substance/mixture and of the Company/Undertaking**

Trade Name: Teflon

Chemical Family: PTFE

Chemical Formula: Polytetrafluoroethylene

SECTION 2: Physical Data

BOILING POINT (F) N/A

FREEZING POINT (F)

VOLATILITY / VOLUME (%) N/A

MELTING POINT

VAPOR PRESSURE (mmHg) N/A

VAPOR DENSITY (Air=1) N/A

SOLUBILITY IN H₂O Insoluble

APPEARANCE / ODOR White and odorless

SPECIFIC GRAVITY (H₂O=1) 2.18 ACIDITY

SECTION 3: Fire and Explosion Hazard Data

FLASH POINT N/A

LOWER FLAME POINT

HIGHER FLAME POINT

EXTINGUISH MEDIA Carbon Dioxide, Dry Chemical or Water
FOR FIRE Self-contained apparatus to protect against decomposition products above 500°F
UNUSUAL FIRE HAZARD PTFE: Will burn when ignited in 100% oxygen

SECTION 4: Health Hazard Info

HEALTH HAZARD THRESHOLD LIMIT VALUE OVER EXPOSURE EFFECTS: Excessive fume inhalation has caused temporary symptoms similar to Grippe

SECTION 5: Reactivity: Data

CHEMICAL STABILITY: Stable

CONDITIONS TO AVOID: Temperatures above 500°F without adequate ventilation

INCOMPATIBLE MATERIALS: Molten Alkali Metals, Interhalogen Compounds

DECOMPOSITION PRODUCTS HAZARDOUS POLYMERIZATIONS: Will not occur

POLYMERIZATION: AVOID V1.0 – 12.15.16

SECTION 6: Spill Or Leak Procedure

FOR SPILL Sweep up and place in container

WASTE DISPOSAL METHOD Reclaim Product.

Landfill SECTION 7: Special Protection RESPIRATORY PROTECTION Not required

VENTILATION Local Exhaust when heated above 500°F

PROTECTIVE GLOVES EYE PROTECTION OTHER PROTECTIVE EQUIPMENT

HANDLING AND STORAGE: Normal handling for plastics

SECTION 8: Special Precautions

HAZARD CLASS

DOT SHIPPING NAME

REPORTABLE QUANTITY (RQ)

UN NUMBER NA#

NA#

PACKAGING SIZE