



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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 "TEFLON" AF SOLUTIONS ALL IN SYNONYM LIST TAP004  
 TAP004 Revised 31-JAN-2003  
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 CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"TEFLON" is a registered trademark of DuPont.

# Tradenames and Synonyms

"TEFLON" 100S2-100-6,  
 "TEFLON" 400S1-1-1, 400S1-100-1,  
 "TEFLON" 601S1-1-6, 601S1-1-18,  
 "TEFLON" 601S1-100-1, 601S1-100-6, 601S1-100-18,  
 "TEFLON" 601S2-100-6, 601S2-100-12, 601S2-100-18,  
 "TEFLON" 700S2-100-6,

#  
 #

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

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 COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
PERFLUORINATED SOLVENT	86508-42-1	>75
1,3-DIOXOLE, 4,5-DIFLUORO-2,2-BIS (TRIFLUOROMETHYL)-, POLYMER WITH TETRAFLUOROETHENE	37626-13-4	<25
May contain as trace impurity: Hexafluoroacetone	684-16-2	<0.01
Heated above 360 deg C polymer can evolve as degradation products: Hydrogen Fluoride Hexafluoroacetone	7664-39-3	<1 <1
Heated above 200 deg C solvent can evolve as degradation products: Hydrogen Fluoride Perfluoroisobutylene	382-21-8	<1 <1

## (COMPOSITION/INFORMATION ON INGREDIENTS - Continued)

## 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.

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HAZARDS IDENTIFICATION  
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## Potential Health Effects

## ADDITIONAL HEALTH EFFECTS

Before using read "Teflon" AF "Safety in Handling and Use".

## ANIMAL DATA: "Teflon" AF

Oral - Lethal Dose > 25,000 mg/m3 in rats Skin - Little or no skin irritation in rabbits. Eye - Mechanical irritation only in rabbits.

## HUMAN HEALTH EFFECTS OF OVEREXPOSURE:

Heating or processing above 360 degrees C or smoking tobacco or cigarettes contaminated with polymer dust can evolve toxic and corrosive vapors of hydrogen fluoride (HF) and hexafluoroacetone (HFA). These vapors are strong eye, nose, and throat irritants.

Inhalation of low concentrations of HF 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.

Repeated exposure over a period of years to excessive concentrations of HF can cause weight loss, brittle bones, anemia, weakness, and stiffness of joints.

Repeated and prolonged inhalation of HFA, based on animal data, may result in nose and throat irritation, lung injury, and testicular, liver, kidney, and blood effects.

DuPont handles hexafluoroacetone (HFA) as a potential human developmental toxin and states that employment of women of childbearing potential in operations involving direct exposure to vapors exceeding the AEL or to any skin contact with liquid solutions of HFA should be avoided. DuPont also handles HFA as a potential human (male) reproduction toxin, but exposure at or below the AEL should adequately protect individuals from adverse effects.

## PERFLUORINATED SOLVENT

## (HAZARDS IDENTIFICATION - Continued)

No adverse health effects are expected from inhalation, skin contact, eye contact, or ingestion. (Information from vendor's MSDS)

## PERFLUOROISOBUTYLENE (PFIB)

Inhalation 2 hour LC50, rat: 1.05 ppm (Extremely toxic). Single and repeated exposure caused: Cyanosis. Impaired lung function. Pulmonary edema. Decreased body weight.

PFIB is an extremely toxic gas for which inhalation is the most likely route of human exposure.

Inhalation exposure may cause severe symptoms of pulmonary edema with wheezing, difficulty in breathing, coughing up sputum and bluish discoloration of the skin. Coughing and chest pain may occur initially. However, severe symptoms of pulmonary edema may be delayed for several hours and then become rapidly worse. Over-exposure may cause death.

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the: lungs.

## 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.

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FIRST AID MEASURES  
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## First Aid

## INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

## SKIN CONTACT

In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

## EYE CONTACT

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

## INGESTION

## (FIRST AID MEASURES - Continued)

If swallowed, immediately give 2 glasses of water and induce vomiting. Never give anything by mouth to an unconscious person. Call a physician.

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Flash Point : Does not flash  
Method : Closed cup

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.

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ACCIDENTAL RELEASE MEASURES  
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## Safeguards (Personnel)

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

## Accidental Release Measures

Evacuate personnel, thoroughly ventilate area, use self-containing breathing apparatus. Soak up with sawdust, sand, oil dry or other absorbent material.

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HANDLING AND STORAGE  
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## Handling (Personnel)

Avoid contact with eyes, skin, or clothing. 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.

## (HANDLING AND STORAGE - Continued)

## Storage

Store in a well ventilated place. Keep container tightly closed. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## Engineering Controls

VENTILATION Use local exhaust to completely remove vapors and fumes from the work area.

## Personal Protective Equipment

## EYE/FACE PROTECTION

Wear safety glasses. Wear coverall chemical splash goggles and/or face shield when the possibility exists for eye and face contact due to splashing or spraying of material. A full face mask respirator provides protection from eye irritation.

## RESPIRATOR

This material does not have established exposure limits. Wear a NIOSH approved positive pressure air-supplied respirator in situations where there may be potential for airborne exposure.

## PROTECTIVE CLOTHING

Wear impervious clothing, such as gloves, apron, boots, or whole bodysuit as appropriate.

Recommended clothing material: Neoprene.

## Exposure Guidelines

## Applicable Exposure Limits

## Hexafluoroacetone

PEL (OSHA)	: None Established
TLV (ACGIH)	: 0.1 ppm, 0.68 mg/m <sup>3</sup> , 8 Hr. TWA, Skin
AEL * (DuPont)	: 0.1 ppm, 8 & 12 hr TWA, skin, men, and women not of childbearing capability.
	0.005 ppm, 8 & 12 hr TWA, skin, women of childbearing capability. Skin contact must be entirely avoided.

## Hydrogen Fluoride

## (Applicable Exposure Limits - Continued)

PEL (OSHA) : 3 ppm, 8 Hr. TWA, as F  
TLV (ACGIH) : 3 ppm, 2.6 mg/m3, Ceiling as F  
AEL \* (DuPont) : 3 ppm, 15 minute TWA

## Perfluoroisobutylene

PEL (OSHA) : None Established  
TLV (ACGIH) : Ceiling 0.01 ppm, 0.082 mg/m3  
AEL \* (DuPont) : 0.01 ppm, 8 Hr. TWA  
0.03 ppm, 15 minute TWA

\* 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.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Boiling Point : 102-155 C (216-311 F)  
Vapor Pressure : 3-31 mm Hg @ 25 C (77 F)  
% Volatiles : >75 %  
Evaporation Rate : <1 (Butyl Acetate = 1)  
Solubility in Water : Nil  
Odor : None  
Form : Liquid solution  
Color : Colorless  
Specific Gravity : 1.8-1.9

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STABILITY AND REACTIVITY  
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## Chemical Stability

Stable at normal temperatures and storage conditions.

## 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.

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ECOLOGICAL INFORMATION  
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## Ecotoxicological Information

## AQUATIC TOXICITY:

PERFLUORINATED SOLVENT 96 hour LC50 - Fathead minnows: > 1000 mg/L

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DISPOSAL CONSIDERATIONS  
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## 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.

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TRANSPORTATION INFORMATION  
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## Shipping Information

DOT  
Proper Shipping Name : NA  
Hazard Class : Not regulated

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REGULATORY INFORMATION  
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## U.S. Federal Regulations

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

## State Regulations (U.S.)

## 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.

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: 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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OTHER INFORMATION  
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## 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.

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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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# 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