

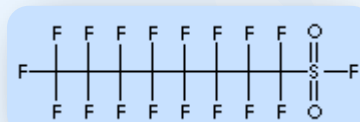
PERFLUOROOCXYLSULFONYL FLUORIDE

SYNONYMS

1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-Heptadecafluoro-1-octanesulfonyl fluoride; N-Perfluorooctanesulfonyl fluoride; Perfluorooctanesulfonyl fluoride; Heptadecafluorooctanesulphonyl fluoride; Perfluoro-1-octanesulfonyl fluoride; Heptadecafluoro-1-octanesulfonyl fluoride;

PRODUCT IDENTIFICATION

CAS RN	307-35-7
EINECS RN	206-200-6
FORMULA	CF ₃ (CF ₂) ₇ SO ₂ F
MOL WEIGHT	502.12



PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	colorless clear liquid
MELTING POINT	-1 C
BOILING POINT	154 - 155 C
DENSITY	1.82 - 1.85
SOLUBILITY IN WATER	reacts
pH	3 - 4
VAPOR DENSITY	> 1 (vs air)
REFRACTIVE INDEX	1.299 - 1.302
FLASH POINT	

APPLICATION

Palladium-catalyzed cross-coupling reactions are an important class of chemical transformations. Reactions such as Suzuki-Miyaura, Heck, and Buchwald-Hartwig reactions have been widely used in the construction of aryl C-C and C-N bonds. Aryl bromides, iodides, and trifluoromethanesulfonates (triflates) are the common substrates for these coupling reactions. We have employed perfluorooctylsulfonates as triflate alternatives, which also have good reactivity in the coupling reactions. Commercially available perfluorooctylsulfonyl fluoride can be used to convert functionalized phenols to corresponding sulfonates under solution-phase reaction conditions using K₂CO₃ as a base and DMF as a solvent. Fluorous sulfonates can be purified by conventional methods such as crystallization or by F-SPE. In multistep synthesis of library scaffolds, the perfluorooctylsulfonyl tag plays three roles: 1) as a protecting agent for the hydroxyl group; 2) as a fluorous tag to facilitate intermediate purification; and 3) as a hydroxy activating group for the coupling reaction. (source: <http://www.pubmedcentral.nih.gov/>)

The main use of Perfluorooctylsulfonyl fluoride is as feedstock to prepare Fluorosurfactants

Zonyl® Fluorosurfactants for wetting

Fluorosurfactants are effective wetting agents in situations where conventional surfactants fail. These include strongly alkaline or acid media. In applications such as soldering flux, fluorinated surfactants function well as low-foaming wetting agents.

Zonyl® Fluorosurfactants for coatings

Fluorosurfactants impart self-leveling properties for even coating thickness. Fluorosurfactants also improve wetting and leveling in photoresist and conformal coatings.

Zonyl® Fluorosurfactants for foam

Amphoteric fluorinated surfactants, such as Zonyl® FS-500 are foaming agents in aqueous media. On the other hand, nonionics, such as Zonyl® FSH and Zonyl® FSO are low foaming surfactants.

Zonyl® Fluorosurfactants for water break

Fluorinated surfactants facilitate wetting of hard surfaces and aid cleaning of low-energy surfaces such as polyethylene. They also promote rapid runoff of rinse solutions. (source: <http://www.fm200.org/>)



PERFLUOROOCXYLSULFONYL FLUORIDE

Modern high performance fire fighting foams used against fires of flammable (Class B) liquids have traditionally been based on low concentrations of fluorosurfactant additives. Fluorosurfactants gave these foams the ability to form thin, spreading films on surfaces of burning liquids, with the films providing significant resistance to diffusion of flammable vapours (i.e., sealability). These two properties, spreading and sealability, afforded fluorosurfactant-based foams fast extinguishment and long burn back characteristics. The fluorosurfactants has typically included perfluorooctyl sulphonate (PFOS) derivatives, perfluorooctanoic acid (PFOA) derivatives and telomer compounds. The perfluorinated entity of the molecule equipped fluorosurfactants with the stability to survive in a harsh fire environment. These same characteristics gave these molecules unexpected long-term stability in the receiving environment. As a consequence, there is growing interest in synthetic foams that do not contain fluorosurfactants and are readily biodegradable. (source: <http://www.nfpa.org/>)

Abbreviations of perfluorinated compounds ✓

STABILITY AND REACTIVITY

STABILITY	Decompose on exposure to moist.
CONDITIONS OF INSTABILITY	Incompatible materials.
INCOMPATIBLE MATERIALS	Strong oxidizing agents.
DECOMPOSITION PRODUCTS	Carbon monoxide, oxides of sulfur, carbon dioxide, hydrogen fluoride.
POLYMERIZATION	Will not occur

SAFETY

HAZARD NOTES	Causes burns. Moisture sensitive. Corrosive.
EYE	Causes eye burns.
SKIN	Causes skin burns.
INGESTION	May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns.
INHALATION	Causes chemical burns to the respiratory tract.
CHRONIC	Contains fluorine which may generate fluoride ion under certain conditions of decomposition or metabolism, may cause nausea, vomiting, labored breathing, hypocalcaemia, deterioration of bone and tooth structure, kidney and liver damage. Prolonged exposure to soluble fluorine compounds can cause deterioration of bone and tooth structure, and kidney damage.
NFPA RATING	Health: , Flammability: , Reactivity:

SALES SPECIFICATION

APPEARANCE	colorless to light yellow liquid
ASSAY	90.0% min
SPECIFIC GRAVITY	1.82 - 1.85

TRANSPORT & REGULATORY INFORMATION

UN NO.	3265
HAZARD CLASS	8
PACKING GROUP	II
HAZARD SYMBOL	C
RISK PHRASES	34
SAFETY PHRASES	26-36/37/39-45



PERFLUOROOCTYLSULFONYL FLUORIDE

PACKING

PRICE

OTHER INFORMATION

NOTE

The information above herein is believed to be reliable and accurate, and represents the best information currently available to us. However, we make no warranty, or guarantee of any kind with respect to such information contained in this document, and we have no liability resulting from its use based on this information. Users should make investigations under their own responsibility to determine the suitability of the information for their purposes. The users are liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages.

