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**5705710****PROCESS FOR THE SYNTHESIS OF  
HEXAFLUOROISOPROPYL ETHERS**

Baker Max T; Tinker John H; Ruzicka Jan A  
Iowa City, IA, UNITED STATES assigned to  
University of Iowa Research Foundation

This invention relates to a method of synthesizing 1,1,1,3,3,3-hexafluoroisopropyl ether compounds from the reaction of methoxymalononitrile with a bromine trifluoride composition.

**5708119****PERFLUOROALKYL SULFIDE,  
SULFONE, POLYSULFONE AND  
POLYSULFIDE DIOLS**

Deisenroth Ted; Haniff Marlon Carmel, NY,  
UNITED STATES assigned to Ciba Specialty  
Chemicals Corporation

Bisperfluoroalkyl-substituted diols containing sulfide, sulfone or polysulfide linkages and a method for making them are described. These diols can react with isocyanates to form urethanes; diisocyanates to form polyurethanes; chloroformates to form carbonates; with carboxylic, sulfuric or phosphoric acids or derivatives to form carboxylate esters, sulfate esters, phosphate esters respectively. These diol compounds and their derivatives are useful for imparting oil and water repellency to substrates such as glass, wood, paper, leather, wool, cotton, polyester and other substrates.

**5710345****FLOORINATED POLYMERS AND  
COPOLYMERS CONTAINING CYCLIC  
STRUCTURES**

Navarrini Walter; Tortelli Vito; Zedda Alessandro  
Boffalora Ticino, ITALY assigned to Ausimont S  
P A

Polymers and copolymers of one or more  
fluorinated dienes of structure  $\text{CFX}_1$  double

bond  $\text{CX}_2\text{-O-CX}_3\text{X}_4\text{-O-CX}_2$  double bond  $\text{CX}_1\text{F}$ ,  
wherein  $\text{X}_1$  and  $\text{X}_2$  are F, Cl or H, and  $\text{X}_3$  and  $\text{X}_4$   
are F or  $\text{CF}_3$ , wherein said dienes essentially form  
cyclic repetitive units, the comonomers used for  
preparing copolymers being ethylene unsaturated  
fluorinated compounds. Processes for preparing the  
fluorinated dienes having said structure which  
comprise the reaction in solution between one  
halogenated olefin and one hypofluorite  $\text{CX}_3\text{X}_4$   
(OF)<sub>2</sub>, wherein  $\text{X}_3$  and  $\text{X}_4$  are F or  $\text{CF}_3$ , and the  
dehalogenation or dehydrohalogenation of the  
linear adduct between one hypofluorite molecule  
and two olefin molecules. The polymers and  
copolymers of the invention are particularly  
suitable for preparing coatings for applications at  
high temperatures.

**5710352****VAPOR PHASE PROCESS FOR MAKING  
1,1,1,3,3-PENTAFLUOROPROPANE AND  
1-CHLORO-3,3,3-TRIFLUOROPROPENE**

Tung Hsueh Sung Erie County, NY, UNITED  
STATES assigned to AlliedSignal Inc

A method for the preparation of  
1,1,1,3,3-pentafluoropropane (HFC-245fa) and  
1-chloro-3,3,3-trifluoropropane (HCFC-1233).  
1,1,1,3,3-pentachloropropane (HCC-240fa) is  
fluorinated with HF in a vapor phase in the  
presence of a vapor phase catalyst. The  
HCFC-1233 and any co-produced  
1,3,3,3-tetrafluoropropane (HFC-1234) are  
recycled for further fluorination by HF for a greater  
than 99% HCC-240fa conversion.

**5710852****OPTICAL WAVEGUIDE FOR  
FIBER-OPTIC AMPLIFIERS FOR THE  
WAVELENGTH REGION AROUND 1550  
NM**

Weber Dieter Kornwestheim, GERMANY  
assigned to Alcatel NV

An optical waveguide for fiber-optic amplifiers is

disclosed where the Progression of the fluorescence band of optical waveguides that are doped with erbium and aluminum can be additionally flattened if the core contains fluorine, e.g., in the form of  $\text{ErF}_3$  and  $\text{AlF}_3$ , as an additional doping agent.

#### 5714517

### FLUOROALKENYL COMPOUNDS AND THEIR USE AS PEST REPELLENTS

Ruminski Peter Gerrard Ballwin, MO, UNITED STATES assigned to Monsanto Company

Fluorinated alkene compounds useful for and methods of controlling nematodes, insects, and acarids that prey on agricultural crops. Polar compounds, for example, 3,4,4-trifluoro-3-butene-1-amine or 3,4,4-trifluoro-3-butenoic acid, are particularly useful for systemic control of pests. Novel method and intermediates for the preparation of 3,4,4-trifluoro-3-butene-1-amine are also provided.

#### 5718807

### PURIFICATION PROCESS FOR HEXAFLUOROETHANE PRODUCTS

Miller Ralph Newton; Deschere Mark Richard; Mahler Barry Asher; Muthu Olagappan Newark, DE, UNITED STATES assigned to E I du Pont de Nemours and Company

The disclosure relates to removing impurities from hexafluoroethane ( $\text{CF}_3\text{CF}_3$ ), also known as PerFluoroCarbon 116 (PFC-116) or FluoroCarbon 116 (FC-116), by using azeotropic distillation such that an overhead product containing an HCl-hexafluoroethane is formed, optionally combined with a phase separation step to break the HCl-hexafluoroethane azeotropic or azeotrope-like composition thereby permitting recovery of substantially pure hexafluoroethane. Unreacted hydrogen fluoride (HF) may be removed from hexafluoroethane during the above azeotropic

distillation with HCl or alternatively by an azeotropic distillation wherein an HF-hexafluoroethane azeotropic or azeotrope-like composition exits overhead and substantially pure HF exits in the bottoms stream.

#### 5719245

### FLUORINE-CONTAINING COPOLYMER AND COMPOSITION CONTAINING THE SAME

Yamamoto Yuichi; Tatsu Haruyoshi Takahagi, JAPAN assigned to Nippon Mektron Limited

A fluorine-containing copolymer composition comprises a novel terpolymer of tetrafluoroethylene-perfluoro(methylvinylether)-1,1,3,3,3-pentafluoropropene and dialkali metal salt of bisphenol compound gives a vulcanization product having a low compression set.

#### 5719259

### PERFLUOROALKYLENE OXIDE COPOLYMER COMPOSITION CONTAINING FUNCTIONAL GROUPS

Tyul'ga Galina Mikhailovna; Platonova Olga Borisovna; Solodkaya Irina Gennadievna; Rondarev Dimetrii Stefanovich; Starobin Yurii Kalmanovich; Sokolov Sergey Vasilievich; VanCleeff Albertus St Petersburg, assigned to E I du Pont de Nemours and Company

Perfluoroalkylene oxide copolymer having acid fluoride moieties are prepared by reaction of hexafluoropropylene oxide and 1,2-epoxypentafluoropropane 3-fluorosulfate in the presence of a cesium alkoxide initiator. The copolymers may be cured at room temperature and are useful in sealant and coating formulations. Derivatives of the copolymers containing ester, amide, nitrile, and ether moieties are also disclosed.



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