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**5605973****BISAMIDRAZONE COMPOUND AND  
VULCANIZING AGENT FOR  
FLUORINE-CONTAINING  
ELASTOMER COMPRISING THE SAME**

Yamamoto Yuichi; Saito Satoru; Tatsu Haruyoshi; German Lev S; Vilovich Ziefman Y; Anatol'evich Postovoi S; Lvovich Rusanov A Ibaraki, JAPAN assigned to Nippon Mektron Limited

N o v e l c o m p o u n d 2,2-bis(4-carboxyphenyl)hexafluoropropane bisamidrazone, obtained by conversion of the carboxy groups of 2,2-bis(4-carboxyphenyl)hexafluoropropane to acid chloride groups, followed by reaction with ammonia; dehydration reaction of the resulting 2,2-bis(4-carboxyphenyl)hexafluoropropane diamide; reaction of the thus obtained 2,2-bis(4-cyanophenyl)hexafluoropropane with alcohol; and reaction of the resulting 2,2-bis(4-carboxyphenyl)hexafluoropropane bisiminoalkyl ether with hydrazine is a useful vulcanizing agent for fluorine-containing elastomer having cyano group.

**5606084****PROCESS OF FLUORINATING ORGANIC  
COMPOUNDS  
WITH 1-SUBSTITUTED-4-FLUORO-1,4-DI  
AZONIABICYCLO OCTANE SALTS**

Poss Andrew J; Shia George Kenmore, NY, UNITED STATES assigned to AlliedSignal Inc

The present invention relates to the preparation and uses of 1-substituted-4-fluoro-1,4-diazoniabicyclo(2.2.2)octane salts, specifically 1-hydroxyl-4-fluoro-1,4-diazoniabicyclo(2.2.2)octane salts as reagents for the introduction of fluorine in organic compounds.

**5606724****EXTRACTING METALS DIRECTLY  
FROM METAL OXIDES**

Wai Chien; Smart Neil G; Phelps Cindy Moscow, ID, UNITED STATES assigned to Idaho Research Foundation Inc

A method of extracting metals directly from metal oxides by exposing the oxide to a supercritical fluid solvent containing a chelating agent is described. Preferably, the metal is an actinide or a lanthanide. More preferably, the metal is uranium, thorium or plutonium. The chelating agent forms chelates that are soluble in the supercritical fluid, thereby allowing direct removal of the metal from the metal oxide. In preferred embodiments, the extraction solvent is supercritical carbon dioxide and the chelating agent is selected from the group consisting of beta-diketones, halogenated beta-diketones, phosphinic acids, halogenated phosphinic acids, carboxylic acids, halogenated carboxylic acids, and mixtures thereof. In especially preferred embodiments, at least one of the chelating agents is fluorinated. The method provides an environmentally benign process for removing metals from metal oxides without using acids or biologically harmful solvents. The chelate and supercritical fluid can be regenerated, and the metal recovered, to provide an economic, efficient process.

**5607485****METHOD OF MAKING POLYMERIC  
ELECTROLYTIC CELL SEPARATOR  
MEMBRANE**

Gozdz Antoni S; Schmutz Caroline; Tarascon Jean-Mari; Warren Paul C Tinton Falls, NJ, UNITED STATES assigned to Bell Communications Research Inc

A flexible polymeric film useful as an interelectrode separator or electrolyte member in electrolytic devices, such as rechargeable batteries, comprises a copolymer of vinylidene fluoride with 8 to 25% hexafluoropropylene. The film may be cast or formed as a self-supporting layer retaining about 20% to 70% of a high-boiling solvent plasticizer or plasticizer mixture comprising

such solvents as ethylene carbonate, propylene carbonate, dimethyl carbonate, and dibutyl phthalate. The film may be used in such form or after extracting of the retained plasticizer with a film-inert low-boiling solvent to provide a separator member into which a solution of electrolytic salt is subsequently imbibed to displace retained plasticizer or replace plasticizer previously extracted from the polymeric matrix.

**5607784**

### **HYDROGEN/FLUORINE POWER GENERATING SYSTEM**

Jalan Vinod; Desai Mahesh N; Johnson Derek A late of Concord, MA, UNITED STATES assigned to ElectroChem Inc

A H<sub>2</sub>/F<sub>2</sub> power generating system is disclosed. The system is particularly useful in producing power in military and space vehicle applications because of its high energy density and long shelf life.

**5608116**

### **PROCESS FOR THE ALKOXYLATION OF FLUORINATED ALCOHOLS**

Halling Robert A; Huang Hsu-Na Wilmington, DE, UNITED STATES assigned to E I Du Pont de Nemours and Company

The present invention relates to the preparation of fluoroalkylalkoxylates in which one reacts at least one fluorinated alcohol with at least one alkylene epoxide in the presence of a novel catalyst system comprising an iodine source and an alkali metal borohydride.

**5608128**

### **PRODUCTION METHODS OF 1,1,1,4,4,4-HEXFLUORO-2-BUTENE COMPOUNDS AND 1,1,1,4,4,4-HEXAFLUOROBUTANE**

Nakada Tatsuo; Aoyama Hirokazu; Takubo Seiji Settsu, JAPAN assigned to Daikin Industries Ltd

PCT No. PCT/JP94/00068 Sec. 371 Date Jul. 27, 1995 Sec. 102(e) Date Jul. 27, 1995 PCT Filed Jan. 19, 1994 PCT Pub. No. WO94/17020 PCT Pub. Date Aug. 4, 1994. The present invention provides a production method of obtaining the mixture of 1,1,1,4,4,4-hexafluoro-2,3-dichloro-2-butene, 1,1,1,4,4,4-hexafluoro-2-chloro-2-butene and 1,1,1,4,4,4-hexafluoro-2-butene (1,1,1,4,4,4-hexafluoro-2-butene compounds) by reacting at least one of butane, butene and butadiene with chlorine and HF in the presence of a suitable catalyst, and also a production method of obtaining 1,1,1,4,4,4-hexafluorobutane by reducing said products in the presence of a noble metal catalyst. According to these methods, 1,1,1,4,4,4-hexafluorobutane, a compound useful for a blowing agent, cleaning agent or heating medium as an alternative to HCFC, can be obtained at a high selectivity rate; and 1,1,1,4,4,4-hexafluoro-2-butene compounds including 1,1,1,4,4,4-hexafluoro-2,3-dichloro-2-butene, 1,1,1,4,4,4-hexafluoro-2-chloro-2-butene and 1,1,1,4,4,4-hexafluoro-2-butene, which are obtained as reaction intermediates in the production method of 1,1,1,4,4,4-hexafluorobutane and can be used as industrial intermediate chemicals for medicine and agricultural chemicals, can be produced less costly at high yields in a single step process.

**5609850**

### **TREATED APATITE PARTICLES FOR ULTRASOUND IMAGING**

Deutsch Edward; Deutsch Karen; Cacheris William P; Ralston William H; White David; Nosco Dennis L; Wolfangel Robert G; Wilking Janet B; Meeh Linda; Woulfe Steven R Maryland Heights, MO, UNITED STATES assigned to Mallinckrodt Medical Inc

Treated apatite particles are disclosed for enhancing radical diagnostic imaging such as magnetic resonance imaging (MRI), magnetic resonance spectroscopy (MRS), magnetic resonance spectroscopy imaging (MRSI), X-ray diagnostic imaging, and ultrasound imaging. Novel coating and manufacturing techniques are disclosed to control particle size and particle aggregation resulting in compositions for organ specific imaging of the liver, spleen, gastrointestinal tract, or tissue disease states is obtained. Depending on the diagnostic imaging technique, apatite particles are

of cancer, such as, leukemia, and as agents for the treatment of sebaceous gland diseases, such as, acne and seborrheic dermatitis.

**5612419**

**FLUORINATED THERMOPLASTIC ELASTOMERS HAVING SUPERIOR MECHANICAL AND ELASTIC PROPERTIES, AND THE PREPARATION PROCESS THEREOF**

Arcella Vincenzo; Brinati Giulio; Albano Margherita; Tortelli Vito Novara, ITALY assigned to Ausimont S p A

Fluorinated thermoplastic elastomers comprising monomeric units deriving from a bis-olefin having general formula: (\*See Patent for Chemical Structure\*) (I) wherein: R1, R2, R3, R4, R5, R6, equal or different from each other, are H or alkyls C1-C5; Z is an alkylene or cycloalkylene radical C1-C18, linear or branched, optionally containing oxygen atoms, preferably at least partially fluorinated, or a (per) fluoropolyoxyalkylene radical.

**5618393**

**ELECTROCHEMICAL CELL HAVING A MASS FLOW FIELD MADE OF GLASSY CARBON**

Law Clarence G; Trainham James A; Newman John S; Eames Douglas West Trenton, NJ, UNITED STATES assigned to E I Du Pont de Nemours Company

The invention relates to an electrochemical cell which has an electrode, a membrane disposed in contact with one side of the electrode and a mass flow field disposed on the other side of the electrode for directing fluid to and away from the electrode. The mass flow field comprises glassy carbon. The cell of the present invention is particularly useful in converting anhydrous hydrogen halide, in particular, hydrogen fluoride, directly to essentially dry halogen gas, such as dry fluorine gas. Alternatively, the cell may be used to convert an aqueous reactant.

**5618894**

**NONAQUEOUS POLYMERIZATION OF FLUOROMONOMERS**

DeSimone Joseph M; Romack Timothy Chapel Hill, NC, UNITED STATES assigned to The University of North Carolina

The present invention provides a process for making fluorinated polymers and copolymers having stable end groups. The process includes (1) contacting a fluoromonomer, an initiator capable of producing stable end groups on the polymer chain, and a polymerization medium comprising carbon dioxide, and (2) polymerizing the fluoromonomer. The polymerization medium preferably comprises liquid or supercritical carbon dioxide. Advantageously, the process may also include the step of separating the fluoropolymer from the polymerization medium. The present invention also provides polymerization reaction mixtures useful in the processes of the present invention.

**5620985**

**ANTIMITOTIC BINARY ALKALOID DERIVATIVES FROM CATHARANTHUS ROSEUS**

Jacquesy Jean-Claude; Fahy Jacques; Berrier Christian; Bigg Dennis; Jouannetaud Marie-Paule; Zunino Fabien; Kruczynski Anna; Kiss Robert Buxerolles, FRANCE assigned to Pierre Fabre Medicament

PCT No. PCT/FR94/00898 Sec. 371 Date Jan. 19, 1996 Sec. 102(e) Date Jan. 19, 1996 PCT Filed Jul. 19, 1994 PCT Pub. No. WO95/03312 PCT Pub. Date Feb. 2, 1995. Novel fluorinated derivatives of the vinblastine and vinorelbine family of general formula (1), (\*See Patent for Chemical Structure\*) 1 wherein the symbols have the meanings indicated in the Specification and Claims, and the therapeutically-acceptable salts of these molecules, as well as pharmaceutical compositions thereof. The invention also concerns the application of said compounds in the treatment of a cancer pathology and their methods of preparation.

**5621144****FLUORINATED COMPOUNDS AS OXYGEN TRANSPORT AGENTS**

Cooper Stephen Maryland Heights, MO, UNITED STATES assigned to Isis Innovation Limited

New compounds are described typically having the formula  $\text{CH}_3\text{C}(\text{CH}_2\text{R})_3$  or  $\text{ZCH}_2\text{C}(\text{CH}_2\text{R})_3$  where R is a fluorohydrocarbon or perfluorocarbon group, preferably containing 4-16 carbon atoms and more F atoms than H atoms. Z is a hydrophilic group which may make the compound self-emulsifiable. The compounds are useful as oxygen transport agents in vivo, for which purpose aqueous emulsions are used, as a blood substitute.

**5621145****BISAMIDOXIME COMPOUND, PROCESS FOR PREPARING THE SAME AND A FLUORINE-CONTAINING ELASTOMER COMPOSITION COMPRISING THE SAME**

Saito Satoru; Tatsu Haruyoshi; Solomonovich Lev; Vilovich Ziefman Y; Anatol'evich Postovoi S; Rafailovich Sterlin Ibaraki, JAPAN assigned to Nippon Mektron Limited

When a novel bisamidoxime compound represented by the following general formula: (\*See Patent for Chemical Structure\*) where R is an alkylidene group having 1 to 6 carbon atoms, or a perfluoroalkylidene group having 1 to 10 carbon atoms, is used as a vulcanizing agent for fluorine-containing elastomers having cyano groups as cross-linkable groups, the resulting vulcanizates having a satisfactory compression set are obtained without any problem of processability such as roll kneadability, etc.

**5623084****FLUOROALKENYL COMPOUNDS AND THEIR USE AS PEST REPELLENTS**

Ruminski Peter G 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.

**5623092****FLUORINATION CATALYST AND PROCESS**

Scott John D; Watson Michael Cheshire, UNITED KINGDOM assigned to Imperial Chemical Industries PLC

A chromium-containing fluorination catalyst which comprises an activity-promoting amount of zinc or a compound of zinc, a process for increasing the activity of a chromium-containing fluorination catalyst by introducing an activity promoting amount of zinc or a compound of zinc to the catalyst and a process for the production of fluorinated hydrocarbons, in particular 1,1,1,2-tetrafluoroethane which comprises reacting a hydrocarbon or a halogenated hydrocarbon, in particular 1-chloro-2,2,2-trifluoroethane with hydrogen fluoride in the vapour phase in the presence of the zinc-promoted chromium-containing catalyst.

**5627174****FLUOROALKENYL COMPOUNDS AND THEIR USE AS PEST CONTROL AGENTS**

Phillion Dennis P; Ruminski Peter G; Yalamanchili Gopichand St Charles, 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, these compounds having the general structure: (\*See Patent for Chemical Structure\*) These Polar compounds are particularly useful for systemic control of pests.

**5627238****COATING COMPOSITIONS OF AN ACRYLIC POLYMER AND A FLUORINATED POLYISOCYANATE**

Anton Douglas; Darmon Michael J; Graham William F; Thomas Richard R Wilmington, DE, UNITED STATES assigned to E I Du Pont de Nemours and Company

A coating composition containing about 45-80% by weight of a binder and 20-55% by weight of an organic liquid; wherein the binder contains (A) about 40-90% by weight, based on the weight of the binder, of an acrylic polymer containing polymerized hydroxyl containing monomers of the following group of hydroxy alkyl acrylate or methacrylates having 1-4 carbon atoms in the alkyl group, and polymerized alkyl acrylates and methacrylates having 1-18 carbon atoms in the alkyl groups, or styrene or any mixtures of the above and (B) about 10-60% by weight, based on the weight of the binder, of a fluorinated organic polyisocyanate crosslinking agent.

**5627292****MONOMERS DERIVED FROM PERHALOGENATED SULTONES AND POLYMERS OBTAINED FROM THESE MONOMERS**

Armand Michel; Sanchez Jean-Yves; Sylla Salime Saint Martin D'Uriage, FRANCE assigned to Centre National de la Recherche Scientifique; Hydro-Queb

The invention relates to monomers derived from perhalogenated sultones, to a process for their preparation, to the polymers obtained from the said monomers and to their use for the production of ion-conductive materials. The monomers are compounds corresponding to the formula A-CFX-SO<sub>2</sub>Z in which A denotes one groups (sic) R<sub>3</sub>-O-CF<sub>2</sub>- or R<sub>3</sub>- or R<sub>1</sub>R<sub>2</sub>N-CO-; Z denotes F, Cl, -OSi(CH<sub>3</sub>)<sub>3</sub> or an ionic group, Z being other than F when A denotes R<sub>3</sub>-O-CF<sub>2</sub>- or R<sub>3</sub>-; X denotes F, Cl, H or RF, X being RF when A denotes R<sub>3</sub>-; the radicals R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> are chosen from polymerizable nonperfluorinated organic radicals; RF is chosen from perfluoroalkyl radicals and perfluoroaryl radicals. The polymers obtained from these monomers can be employed for the production of ion-conductive materials.

**5627290****2,3-DIDEHYDROSIALIC ACID SUBSTITUTED WITH FLUORINE AT 7-POSITION AND SYNTHETIC INTERMEDIATE THEREOF**

Iida Takao; Ohira Yutaka Ibaraki, JAPAN assigned to Daikin Industries Ltd

PCT No. PCT/JP95/00820 Sec. 371 Date Jan. 26, 1996 Sec. 102(e) Date Jan. 26, 1996 PCT Filed Apr. 26, 1995 PCT Pub. No. WO95/32955 PCT Pub. Date Dec. 7, 1995. The invention pertains to 2,7-Deoxy-7-fluoro-2,3-didehydrosialic acid and an intermediate thereof which are useful for developing practical drugs, such as an antiviral agent, a preventing agent for viral diseases, etc. and for a clinical application. In addition, they are also useful as a carcinostatic agent and an immunomodulation agent.

**5628882****METHOD FOR SPUTTER DEPOSITION OF A CHROMIUM, CARBON AND FLUORINE CRYSTALLINE FILMS**

O'Keefe Matthew J; Rigsbee J Michae Kettering, OH, UNITED STATES assigned to The United States of America as represented by the Secretary of the Air Force

System and method for plasma-assisted deposition of optically transparent, crystalline chromium/carbon/fluorine films are described using a chromium metal source and an argon/fluorocarbon plasma. The films were optically transparent to the unaided eye. Characterization of the material by electron diffraction showed the chromium/carbon/fluorine material to be crystalline.

**5628894****NITROGEN TRIFLUORIDE PROCESS**

Tarancon Gregorio High Springs, FL, UNITED STATES assigned to Florida Scientific Laboratories Inc

A method for the production of nitrogen trifluoride (NF<sub>3</sub>) and hydrogen (H<sub>2</sub>) gas, starting with a molten flux including at least ammonia (NH<sub>3</sub>), a metal fluoride, and hydrogen fluoride (HF), including the steps of: circulating the molten flux from an electrolyzer, to an ammonia solubilizer, to a nitrogen trifluoride reactor, to a hydrogen fluoride solubilizer, and back to the electrolyzer; maintaining the quantity of the molten flux substantially constant by adding ammonia (NH<sub>3</sub>) and a carrier gas to the ammonia solubilizer and by adding hydrogen fluoride (HF) and a carrier gas to the hydrogen fluoride solubilizer; producing fluorine (F<sub>2</sub>) gas and hydrogen (H<sub>2</sub>) gas in the electrolyzer; transferring the carrier gas from at least one of the solubilizers to the nitrogen trifluoride reactor; mixing the fluorine gas and the carrier gas and supplying the mixed gases to the nitrogen trifluoride reactor; reacting the fluorine gas with the molten flux in the nitrogen trifluoride reactor to produce nitrogen trifluoride (NF<sub>3</sub>); and collecting the nitrogen trifluoride (NF<sub>3</sub>) produced at a nitrogen trifluoride condenser and collecting the hydrogen (H<sub>2</sub>) produced at a hydrogen condenser.

**5629458****PROCESS FOR THE PREPARATION OF 2,2 TRIFLUOROETHANOL**

Thenappan Alagappan; Van Der Puy Michael; Eibeck Richard Cheektowaga, NY, UNITED STATES assigned to Allied Signal Inc

A vapor phase process for producing a fluorinated alcohol, such as 2,2,2-trifluoroethanol via oxidation of an hydrofluorocarbon, such as 1,1,1-trifluoroethane, with an oxidizing agent and elemental fluorine.

**5629460****PROCESS FOR THE PREPARATION OF 1,1,1,3,3,3-HEXAFLUORO-2-PROPANONE**

Thenappan Alagappan; Van Der Puy Michael; Eibeck Richard Cheektowaga, NY, UNITED STATES assigned to Allied Signal Inc

A vapor phase process for the preparation of fluorinated ketones, such as 1,1,1,3,3,3-hexafluoro-2-propanone via oxidation of hydrofluorocarbons, such as 1,1,1,3,3,3-hexafluoropropane, with an oxidizing agent and elemental fluorine at temperatures ranging from 50°C to 300°C and residence times ranging from 2 to 60 seconds.

**5633399****PROCESS FOR THE PREPARATION OF FLUORINATED BENZOIC ACIDS**

Wang Xiu C; Kalaritis Pano; Chang Michelle L Park City, IL, UNITED STATES assigned to Abbott Laboratories

A process for the preparation of 2-chloro-4,5-difluorobenzoic acid and 2,4,5-trifluorobenzoic acid as well as synthetic intermediates useful in and prepared according thereto, comprising reacting a nitrobenzene having the formula (\*See Patent for Chemical Structure\*) wherein X is chloro or fluoro, with an appropriate carbanion to form a compound having the formula (\*See Patent for Chemical Structure\*) wherein one of Y and Z is chloro and the other is nitro, and R is a radical selected from the group consisting of -CCl<sub>3</sub>, -CH<sub>2</sub>NO<sub>2</sub>, -CH(NO<sub>2</sub>)R<sub>1</sub>, -CH(CO<sub>2</sub>R<sub>1</sub>)<sub>2</sub>, -CH(C(O)R<sub>2</sub>)<sub>2</sub>, -CH(CN)CO<sub>2</sub>R<sub>1</sub>, -CH(CO<sub>2</sub>R<sub>1</sub>)COR<sub>2</sub> and -COR<sub>2</sub> where R<sub>1</sub> is alkyl or arylalkyl and R<sub>2</sub> is alkyl, aryl or arylalkyl and, where appearing more than once in such a radical, R<sub>1</sub> and R<sub>2</sub> may be the same or different at each occurrence.





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