Use of fiber film reactors to effect separation and reaction between two immiscible reaction components
Massingill, J., Texas State University, San Marcos, Texas, USA, 7/20/2006, US20060157411

This is a fiber reaction process whereby reactive components contained in immiscible streams are brought into contact to effect chemical reactions and separations. The conduit reactor used contains wettable fibers onto which one stream is substantially constrained and a second stream is flowed over to continuously create a new interface there between to efficiently bring about contact of the reactive species and thus promote reactions thereof or extractions thereby. Co-solvents and phase transfer catalysts may be employed to facilitate the process.

Method for continuous catalytic hydrogenation
Grass, M., and others, Degussa AG and Oxeno Olefinchemie GmbH, Düsseldorf, Germany, 7/20/2006, US20060161017A1

The invention relates to the preparation of alicyclic carboxylic acids or their derivatives by selective hydrogenation of the corresponding aromatic carboxylic acid (derivatives) in at least two series-connected reactors, at least one reactor being operated in loop operating mode. The catalyst volumes in the method are set in such a manner that the catalyst volume required, based on the conversion rate, is as low as possible.

Functionalized vegetable oil derivatives, latex compositions and coatings
Thames, S., and others, c/o Howrey LLP, Falls Church, Virginia, USA, 9/21/2006, US20060211795A1

An ethylenically unsaturated vegetable oil is modified by the addition of an enophile or dienophile having an acid, ester, or anhydride functionality. The modified vegetable oil is then reacted with a polyethylene glycol (PEG) derivative along with a functional vinyl monomer or a PEG derivative that contains a vinyl functionality to form a vegetable oil derivative. The vegetable oil derivative is useful in forming latexes and coatings.

Processes for making functional soy protein isolate compositions
Mozaffar, Z., Solae, LLC, St. Louis, Missouri, USA, 10/12/2006, US20060228462A1

Processes for producing soy protein isolate compositions having improved functionality are disclosed. Specifically, the processes comprise modifying a precipitated soy protein curd with a modifying agent selected from the group consisting of transglutaminase, sodium hypochlorite, a sucrose ester, a fatty acid, a lecithin, and combinations thereof. The soy protein isolate compositions are suitable for use in meat and meat products.

Published patents

Method for producing fatty acid methyl ester and equipment for realizing the same

Method for producing fatty acid methyl ester, including compounds containing saturated and unsaturated higher fatty substances from at least one of vegetable and animal with an alkaline solution dissolved in alcohol to form a mixture. The method also includes emulsifying the mixture to reach a chemical balance state in a reaction section, wherein fats are transesterified into fatty acid methyl ester, wherein border surfaces of the mixture are enlarged by dynamic turbulence in the reaction section and the transesterification is performed under pressure, and wherein the pressure is reduced during transesterification. The method further includes after reaching a chemical balance state, separating residues from the fatty acid methyl ester in a phase separation section.

Fat blend

The invention relates to an oil, fat and/or lecithin-based fat blend containing polyunsaturated fatty acids. The inventive fat blend is characterized in that the fatty acids gamma-linolenic, stearidonic, and eicosapentaenoic together make up 10 to 500 mg/g total fatty acids. The gamma-linolenic and eicosapentaenoic acids each represent 20 to 50 wt% and the stearidonic acid represents 15 to 50 wt% of the sum of these three fatty acids. The inventive fat blend can be incorporated into a dietetic or pharmaceutical product, especially a dietetic food, and can be used especially for administering to patients suffering from chronic/inflammatory diseases, disorders of the lipid metabolism, a weakened immune function, and/or a restricted lipolytic capacity of the gastrointestinal tract.

High oleic acid oil compositions and methods of making and electrical insulation fluids and devices comprising the same

High oleic acid triglyceride compositions that comprise fatty acid components of at least 75% oleic acid, less than 10% diunsaturated fatty acid component; less than 3% triunsaturated fatty acid component; and less than 8% saturated fatty acid component; and less than 15% total unsaturated fatty acid components of at least 75% oleic acid, less than 10% diunsaturated fatty acid component; less than 3% triunsaturated fatty acid component; and less than 8% saturated fatty acid component; and having the properties of a dielectric strength of at least 35 KV/100 mil gap, a dissipation factor of less than 0.05% at 25°C, acidity of less than 0.03 mg KOH/g, electrical conductivity of less than 1 pS/m at 25°C, a flash point of at least 250°C and a pour point of at least −15°C are disclosed. Electrical insulation fluids comprising the triglyceride composition are disclosed. Electrical insulation fluids that comprise the triglyceride composition and a combination of additives are disclosed. Electrical apparatuses comprising the electrical insulation fluids and the use of electrical insulation
fluids to provide insulation in electrical apparatuses are disclosed. A process for preparing the high oleic acid triglyceride composition is disclosed.

**Method for producing technical oleic acid methyl esters**


A process for making technical oleic acid methyl esters having a stearic acid methyl ester content of less than about 2% by weight, and a palmitic acid methyl ester content of less than about 5%, comprising: (i) providing a C8–18 palm kernel oil fatty acid methyl ester; (ii) fractionally distilling said C8–18 palm kernel oil fatty acid methyl ester to form a C8–14 head product and a C16–18 bottom product; (iii) fractionally distilling the C16–18 bottom product to form a short-chain C16 head product and a long-chain and unsaturated C18 bottom product; (iv) fractionally distilling the long-chain and unsaturated C18 bottom product to form a predominantly unsaturated head product having a high palmitic acid methyl ester content and a predominantly unsaturated bottom product have a minimal palmitic acid methyl ester content; and (v) fractionally distilling the predominantly unsaturated bottom product have a minimal palmitic acid methyl ester content to form a head product rich in oleic acid methyl ester and poor in stearic acid methyl ester and a bottom product rich in both oleic acid methyl ester and stearic acid methyl ester.

**Separation of plant oil triglyceride mixtures by solid bed adsorption**


A solid bed adsorptive process for separating a seed oil into two substantially pure triglyceride fractions. The process involves contacting a seed oil, such as castor oil, preferably as a concentrate, with an adsorbent in a bed, the adsorbent having a particle size greater than about 40 microns, and thereafter contacting the adsorbent with a desorbent material, preferably under minimal flow conditions, to obtain a raffinate output stream containing predominantly a second triglyceride and an extract output stream containing predominantly a first triglyceride. Purified fatty acid triglyceride esters obtainable from castor, vernonia, and lesquerella plant oils provide renewable, nonpetroleum-based sources of chemical feedstocks.

**Compositions of material, especially lubricants and pressure transmitting means, the production and use thereof**

Hoelderich, W., and others, Fuchs Petrolub AG, Mannheim, Germany, 9/5/2006, US7101831B2

The invention relates to novel compositions of matter which may advantageously be used as lubricants or pressure transfer media or else for functional liquids and lubricant additives. The lubricants according to the invention are the reaction products of an electrophilic addition of linear or branched, aliphatic or aromatic carboxylic acids, carboxylic anhydrides, carbonyl halides, or novel neoacids to the double bonds of fatty acids, esters thereof, and/or of other fatty acid derivatives and also of synthetic esters. Owing to their increased oxidation resistance compared with the starting materials and also their low toxicity, the novel class of synthetic esters based on oleochemicals may find use in novel environmentally compatible lubricants, pressure transfer systems, functional liquids, and lubricant additives.

**Process for controlling the fatty acid chain composition of triglycerides and use thereof**


The present invention relates to a process for controlling the fatty acid chain composition of triglycerides wherein a feed stream comprises a mixture of triglycerides containing at least one long chain. Said mixture is substantially free of trishort chain triglycerides and it is treated in at least two fractionation steps to fractionate between long chain triglycerides at temperatures above 200°C and pressures between 0.01 and 10 Pa, wherein one of said steps fractionates between trilong chain triglycerides and monodilong chain triglycerides and the other one of said steps fractionates between monolong chain triglycerides and dilong chain triglycerides. The process can be used for the providing of target triglycerides having a controlled fatty acid chain distribution.

**Metathesis of unsaturated fatty acid esters or unsaturated fatty acids with lower olefins**


An olefin metathesis process involving contacting an unsaturated fatty acid ester or unsaturated fatty acid, such as methyl oleate or oleic acid, with a lower olefin, preferably ethylene, in the presence of a metathesis catalyst so as to prepare a first product olefin, preferably, a reduced-chain olefin, such as methyl-9-decenoate or 9-decenoic acid, respectively. The metathesis catalyst contains ruthenium or osmium and a chelating ligand, preferably, a chelating ligand containing a carbene moiety and a second donor moiety of a Group 15 or 16 element. Optionally, the catalyst can be supported on a catalyst support, such as a cross linked polymeric resin.

**Process for the preparation of organosilylated carboxylate monomers, and their use in antifouling coatings**


Process for the preparation of organosilylated carboxylate monomers comprising the step of reacting an acyloxysilane with an unsaturated carboxylic acid, the monomers and their use in antifouling coatings.

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