Biolubricants: technical and market survey
SURVEY 5: February 2009

PATENT: new patents on biolubes (C10M) since August 2008  173-193
TECHNICAL SIDE: what’s new from labs  194-208
POLICY: the lead market initiative - a new standard for biolubes  209
LEGISLATION: when regulations push the market  210-212
MARKETS: from the marketplace (but nobody knows)  213-214
ON THE WEB: how your competitors communicate on their biolubs!  215-218
ECO-LABELS IN EUROPE  219-221

173-- PATENT: MOLD RELEASE COMPOSITION CONTAINING FATTY ACID ESTER AND CALCIUM SALT, USED FOR PRODUCTION OF MOLDED PARTS FROM HYDRAULICALLY-SETTING MATERIALS, E.G. CONCRETE FACINGS WITH AN AESTHETIC APPEARANCE
Patent number: FR2909918
Publication date: 2008-06-20
Inventor: VENON STEPHANE; CHANVILLARD GILLES; DUVOIS-BRUGGER ISABELLE; TEISSIER VINCENT; LEVY CHRISTOPHE
Applicant: LAFARGE SA [FR]
Category: B28B7/38; C10M125/00; C10M169/04; B28B7/38; C10M125/00; C10M169/00, C04B24/08; B28B7/38C; C04B22/12

A demolding composition (I) containing at least one oil and at least one calcium salt. Independent claims are also included for (1) a method for the preparation of molded parts from hydraulically-setting material, by coating the walls of a suitable mold with (I), introducing the freshly-prepared molding composition and removing the mold after the composition has hardened and possibly cured (2) molded parts obtained by this method

174-- PATENT: ENVIRONMENTALLY-FRIENDLY LUBRICANT COMPOSITIONS
Patent number: EP2017329
Publication date: 2009-01-21
Inventor: MACPHerson IAN [US]; PETTiGReW ANn [US]
Applicant: AFTON CHEMICAL CORP [US]
Category: C10M141/06; C10M141/08; C10M141/10

A lubricant additive composition having environmentally compatible characteristics as defined by European Council Directive 67/548/EEC is disclosed. Such a composition may include components selected from non-persistent materials, non-bioaccumulative materials, or non-toxic materials.
175-- PATENT: METHOD FOR PREPARING WATER-SOLUBLE ANTI-RUST LUBRICATING ADDITIVE
Patent number: CN101265435
Publication date: 2008-09-17
Inventor: FENG LU [CN]
Applicant: CHANGZHOU XIALEI CHEMICAL CO L [CN]
Category: C10M159/12; C10N30/12; C10N40/22; C10M159/00

The invention relates to a water-soluble antirust lubricity additive used for preparing the water-based metal cutting fluid and the preparation method thereof. The preparation method comprises the following steps: a, vegetable oil and maleic anhydride in mass ratio of 100:10-100:40 are added into a reaction container, stirred and heated to 200 to 600 DEG C, and insulated for 2 to 6 hours; b, the heating is stopped, and the stirring is continued to ensure the reactant to be naturally cooled to 60 to 100 DEG C; c, triethanolamine is added into the reaction container to perform the neutralization reaction. The additive prepared in the invention has the advantages that the lubricating property, the anti-rust performance and the anti hard water performance are good; the raw material is easy to be obtained; the preparation is convenient; and the production cost is low.; The additive is prepared by taking the vegetable oil as the raw material to replace the traditional polyether petroleum product, therefore the valuable petroleum resource can be saved, and the pollution can be reduced.

176-- PATENT: WATER-SOLUBLE CUTTING LIQUID FOR SUPER-FINE HONING
Patent number: CN101265434
Publication date: 2008-09-17
Inventor: FENG LU [CN]
Applicant: CHANGZHOU XIALEI CHEMICAL CO L [CN]
Category: C10M159/12; C10M101/04; C10M133/44; C10M145/24; C10N40/22; C10M159/00; C10M101/00; C10M133/00; C10M145/00

The invention relates to a water-soluble cutting fluid used for the metal super-fine honing and the preparation method thereof. The preparation method comprises the following steps: firstly, a modified vegetable oil rust inhibiting lubricant is prepared; secondly, 7 to 10 parts of triethanolamine, 1 to 2 parts of boric acid and 1 to 2 parts of sebacic acid are added into a reaction container in weight ratio, and are stirred and heated to 95 DEG C, 10 parts of deionized water, 5 parts of modified vegetable oil rust inhibiting lubricant, 1 part of polyether polyol and 0.05 part of tolyltriazole are added in sequence in weight ratio, and the heating is stopped and the stirred is continued until the mixture is uniform and transparent.; The cutting fluid is used after being diluted by adding water, and can replace the generally used cutting oil for super-fine honing; all the performance indexes reach or exceed the third class relevant indexes of GB6144-85; the oil mist is lower when in use, no penetrating odor exists, no special requirement to the water quality exists when the concentrated solution is diluted, and the fluid changing period is long.

177-- PATENT: METALLIC FIBER DRAWING LUBRICANT AGENT
Patent number: CN101245282
Publication date: 2008-08-20
Inventor: XIQIU LU [CN]
Applicant: FOSHAN SHUNDE YUANMAO CHEMICAL [CN]
Category: C10M173/02; C10N40/22; C10M173/02
The invention provides an environmental protective metal wire drawing lubricant with little using viscosity, no toxicity, easy degradation and no combustion and comprises a water-based lubricant, plant fermentation materials, plant extracts, nitrides and water; wherein, the weight proportions of the four components of the water-based lubricant, the plant fermentation materials, the plant extracts and the nitrides are 2 to 6:1 to 4:2 to 6:1 to 4.; The lubricant with high heat dissipation speed does not produce oil mists in wire drawing by high temperature, thus protecting the environment of the production workshops and the health of workers and also putting an end to hidden troubles that sparks produced in the wire drawing process cause fire accidents when meeting the oil mists; the lubricant is easily degraded without resulting in environmental pollution; when in use, the lubricant is little in viscosity and strong in cleaning ability; metal powders do not easily touch a mechanism and a mould and the lubricant is long in life cycle and a lubricant circulation pool does not need to be frequently cleaned in the using process; at the same time, the lubricant is fairly economic as the price of the lubricant is more or less 50 percent of the price of the imported lubricants.

**176-- PATENT: ALUMINUM-MAGNESIUM ALLOY WIREDRAWING LUBRICANT**

*Patent number: CN101205499*
*Publication date: 2008-06-25*
*Inventor: XIANYAN ZHOU [CN]*
*Applicant: XIANYAN ZHOU [CN]*
*Category: C10M149/14; C10M101/04; C10N40/24; C10M149/00; C10M101/00*

The invention provides an aluminum-magnesium alloy drawing lubricant which consists of the components with the following mass percentage: 85 to 94 percent of base oil, 3 to 8 percent of polyurethane, 1 to 2 percent of antirust agent CY-25, and 2 to 5 percent of water-soluble molybdenum. The base oil is animal grease or plant grease with the movement viscosity of 15 to 30mm2/s used when the temperature of the lubricant is 50 DEG C.; The invention has the advantages that: the invention replaces chloride series and sulfur series extreme-pressure additive with the polyurethane, greatly decreases the content of chloride, sulfur and phosphorus in a product, reduces the treatment cost of waste oil, increases the environmental protection, is not easy to catch fire, has good lubrication performance; allows the proportion of the composition to be optimized; the product has extremely low unsaturation degree, no pollution to metals, excellent thermal stability, oxidation stability and hydrolytic stability, slows the aging and prolongs the service life.

**177-- PATENT: LUBRICANT ADDITIVE AND LUBRICANT COMPOSITION**

*Patent number: WO2009004893*
*Publication date: 2009-01-08*
*Inventor: SEKIGUCHI HIROKI [JP]; OKADA TAHEI [JP]*
*Applicant: IDEMITSU KOSAN CO [JP]; SEKIGUCHI HIROKI [JP]; OKADA TAHEI [JP]*
*Category: C10M159/02; C10M129/16; C10M129/70; C10M129/84; C10M129/86; C10M129/95; C10N30/00; C10N30/06; C10N30/08; C10N30/10; C10N40/04; C10N40/20; C10N40/25; C10M159/00; C10M129/00*

Disclosed is a lubricant additive characterized by containing at least one steroid derivative selected from steroid saturated fatty acid esters, steroid carbonic acid esters and steroid ethers. A lubricant composition containing such a lubricant additive has low friction coefficient and excellent wear resistance, while exhibiting excellent heat resistance and excellent oxidation resistance stability.
178-- PATENT: LOW SULFUR, LOW ASH, AND LOW PHOSPHORUS LUBRICANT ADDITIVE PACKAGE USING OVERBASED CALCIUM OLEATE

Patent number: SG148014
Publication date: 2008-12-31
Inventor: CARL K ESCHE JR
Applicant: AFTON CHEMICAL INTANGIBLES LLC
Category: C10M163/00

The present invention provides a low sulfur, low ash, and low phosphorus oil soluble lubricant additive package comprising an overbased metal carboxylate. Also included in the present invention are lubricating oils comprising the inventive oil soluble lubricant additive package, as well as machines lubricated by such oils. Several methods for lubricating machinery are also disclosed.

179-- PATENT: ENVIRONMENTALLY FRIENDLY LUBRICANT AND PROCESS FOR PRODUCING THE SAME

Patent number: RO122045
Publication date: 2008-11-28
Inventor: FLOREA ORTANSA [RO]; LUCA MARCEL CONSTANTIN [RO]; STELIEAN IULIANA CAMELIA [RO]
Applicant: ICERP SA [RO]
Category: C10M101/04; C10M169/04; C10M101/00; C10M169/00

The invention relates to a lubricant meant for the lubrication and protection of moving components of road vehicles, agricultural machines and other equipments and to a process for producing the same. According to the invention, the lubricant comprises 11...22% organophylic clay; 72...84% soya and/or sunflower oil; 4...11% water and/or glycerol; 0.1...3% oxidation retarder and, possibly, 5...8% synthetic oil and/or di-2-ethylhexyl sebacate; 2...6% graphite and 3...5% micronized talcum.

180-- PATENT: BLENDS OF LUBRICANT BASESTOCKS WITH POLYOL ESTERS

Patent number: EP1999239
Publication date: 2008-12-10
Inventor: GAO JASON Z [US]; HABEEB JACOB JOSEPH [US]
Applicant: EXXONMOBIL RES & ENG CO [US]
Category: C10M105/40; C10M105/42

A lubricating composition is provided comprising a polyol ester which is the reaction product of a neopolyol with linear or branched monocarboxylic acids and mixtures thereof having from 1 to about 25 carbon atoms and a natural or GTL oil of lubricating viscosity and mixtures thereof and wherein the weight ratio of the ester to oil will be sufficient to provide a composition having a viscosity less than the individual viscosities of the ester and oil.

181-- PATENT: HIGH-LUBRICITY ENVIRONMENT-FRIENDLY WATER-BASED CORE ROD LUBRICANT AGENT

Patent number: CN101270317
Publication date: 2008-09-24
Inventor: XIANHE CHEN [CN]; JIANZHONG CHANG [CN]; YONG WANG [CN]
Applicant: QIDONG YUSHIRO CHEMICAL INDUST [CN]
The invention discloses a high-lubricity water-based core rod lubricant friendly to the environment, which consists of scale-like plumbago, fused salt, an inorganic binder, a viscosity increaser, water and auxiliary materials. The invention is usable and has excellent lubricity at high temperature; the core rod has long service life, and can meet the requirement of the current pipe mills for adjusting product structure and product quality.

182-- PATENT: LUBRICANT BLEND COMPOSITION
Patent number: WO2008134179
Publication date: 2008-11-06
Inventor: THOEN JOHAN A [BE]; GEIGER RENE [CH]; GREAVES MARTIN R [US]; BUSBY DAVID C [US]
Applicant: DOW GLOBAL TECHNOLOGIES INC [US]; THOEN JOHAN A [BE]; GEIGER RENE [CH]; GREAVES MARTIN R [US]; BUSBY DAVID C [US]
Category: C10M111/04; C10M169/04; C10N30/02; C10N30/06; C10M111/00; C10M169/00

The present invention relates to a lubricant composition. The present invention more particularly relates to a fully miscible lubricant composition that comprise a polyether and a renewable raw material such as an unsaturated seed or vegetable oil.

183-- PATENT: FUEL ECONOMY LUBRICANT COMPOSITIONS
Patent number: US2008255011
Publication date: 2008-10-16
Inventor: POIRIER MARC-ANDRE [CA]; SUTTON OLIVIER [US]
Applicant: -
Category: C10M169/04; C10M105/34; C10M105/00

The present invention provides a lubricating composition comprising a major amount of a GTL lubricating base oil and a friction modifier consisting essentially of oil soluble fatty acid esters of a polyol. Such lubricating compositions have reductions in their friction coefficients that are greater than similar compositions formulated with Group III or PAO base oils.

184-- PATENT: CAPPED POLYESTER POLYOL LUBRICANT COMPOSITION
Patent number: WO2008124265
Publication date: 2008-10-16
Category: C10M105/42

The present invention relates to polyester polyol lubricant compositions, some of which are capped, that include two or more chemically linked ester moieties, at least one of which derives from a seed or vegetable oil, and their preparation. The compositions have a pour point temperature of -10 DEG centigrade or less without a pour point depressant and a viscosity at 25 DEG centigrade within a range of 40 centipoises (0.04 pascal...
second) to 2000 centipoises (2 pascal seconds) when they either lack an initiator moiety or include an initiator moiety other than a dendritic initiator moiety, and a pour point temperature of -5 DEG centigrade or less without a pour point depressant and a viscosity at 25 DEG centigrade within a range of 40 centipoises (0.04 pascal second) to 8000 centipoises (8 pascal seconds) when they include a dendritic initiator moiety.; The present invention also relates to a process for removing at least a portion of saturates from said compositions.

185-- PATENT: HEAT RESISTANT LITHIUM GREASE COMPOSITION AND A SMALL MOTOR REDUCED NOISE BEARING

Patent number: US2009029881 (A1)
Publication date: 2009-01-29
Inventor: OKAMURA SEIJI [JP]; AKIYAMA MOTOHARU [JP]; HASHIMOTO SELJI [JP]; IWAMATSU HIROKI [JP]
Applicant:
Category: C10M169/02; C10M169/06

A heat-resistant noise-reduction grease and a bearing containing the grease for a small motor such as a motor for imaging equipment such as a blower fan and motor bearing for a household electrical appliance such as an air conditioner, which is eco-friendly and excellent in noise-reduction properties is provided.; The heat-resistant lithium grease composition is composed of 5 to 20% by weight of a thickener and 95 to 80% by weight of a base oil, wherein long-chain fatty acid lithium soap with 26 to 32 carbon atoms and lithium soap comprising a higher fatty acid with 10 to 20 carbon atoms and/or a higher hydroxyfatty acid with one or more hydroxyl groups and 10 or more carbon atoms are used as the thickener, and the base oil contains, as a main component, polymer ester oil (A) in which 8 or more ester groups are arranged in comb tooth form on one side of chain molecules of oil constituted with 8 or more carbon atoms, which is expressed by the following general formula:

(where each of R1, R2, R3 and R4 represents an alkyl group, x represents an integer satisfying \( x \geq 2 \), and y represents an integer satisfying \( y \geq 2 \)) and the base oil has a viscosity (40°C.) of 30 to 100 mm2/s.

186-- PATENT: WATER-BASED FIRE RESISTANT LUBRICANT

Patent number: EP1971673
Publication date: 2008-09-24
Inventor: PALMERIO LORRAINE [US]; DICKEY KEVIN [US]
Applicant: QUAKER CHEM CORP [US]
Category: C10M173/02; C10M133/16

The present invention relates to a method for using a water-based fluid composition to lubricate metal-metal surfaces in contact with each other in a non-hydraulic system, wherein at least one of the metal surfaces is moving. The invention also relates to a water-based fluid composition for use as a lubricant in the described method.
187-- PATENT: DRILLING MUG LUBRICANT AND SHALE STABILIZER
Patent number: US2008207472
Publication date: 2008-08-28
Inventor: VALLS MICHAEL [US]
Applicant: -
Category: C10M103/02; C09K8/68; C10M103/00; C09K8/60

A well drill lubricant and shale stabilizer employs a sugar alcohol, such as glycerin or crude glycerol and graphite beads suspended in the liquid alcohol. A viscosity agent, such as a gum, is added to improve viscosity along with water. Some impurities present in crude glycerol, such as ash, methanol and MONG are present in small amounts. The composition is non-toxic, fully biodegradable, while possessing high coefficient of lubricity.

188-- PATENT: HIGH TEMPERATURE BIOBASED LUBRICANT COMPOSITIONS COMPRISING BORON NITRIDE
Patent number: CN101218331
Publication date: 2008-07-09
Inventor: -
Applicant: RENEWABLE LUBRICANTS INC [US]
Category: C10M169/04

This present invention discloses a method for the preparation of an improved high temperature engine lubricant composition comprising the steps of: 1) providing at least one biobased natural oil or biobased synthetic oil selected from the group consisting of natural or synthetic vegetable oil, natural or synthetic animal oil, genetically modified vegetable oil, genetically modified synthetic vegetable oil, natural or synthetic tree oil, and mixtures thereof; 2) providing at least one boron nitride; and 3) optionally, providing at least one base oil selected from the group consisting of a synthetic ester, solvent refined petroleum oil, a hydrocracked petroleum white oil, an all hydproprocessed synthetic oil, Fischer Tropsch oil, petroleum oil group I, group II, group III, a polyalphaolefin (PAO), and mixtures thereof; 4) optionally, providing at least one additive or combination of additives selected from the group consisting of anti-oxidant(s), corrosion inhibitor(s), metal deactivator(s), viscosity modifier(s), anti-wear inhibitor(s), friction modifier(s), and extreme pressure agent(s); 5) blending 1), 2), 3), and 4) in any sequence to form said composition.

189-- PATENT: BIODEGRADABLE GREASE COMPOSITION
Patent number: JP2008208240
Publication date: 2008-09-11
Inventor: HAYASHI KENJI; TSUJI SHINGO
Applicant: COSMO SEKIYU LUBRICANTS KK
Category: C10M169/00; C10M115/08; C10M117/02; C10M117/04; C10M117/06; C10M135/02; C10M135/20; C10M20/00; C10M20/02; C10M30/00; C10M30/06; C10M30/10; C10N40/02; C10M50/10; C10M169/00; C10M115/00; C10M117/00; C10M135/00

PROBLEM TO BE SOLVED: To provide a grease composition excellent in biodegradation, an extreme pressure property and thermal oxidation stability. ; SOLUTION: The grease composition contains at least one kind or more selected from a polyol ester and a complex ester, as a base oil, in an amount of 70 mass% based on the whole amount of a base oil, contains the base oil having kinematic viscosity at 40[deg.]C of 1-2,000
mm<SP>2</SP>/s, contains at least one kind or more selected from a lithium soap based thickener, a composite body lithium soap based thickener, polyurea and an N-substituted telephthalaminic acid metal salt in an amount of 1-40 mass% based on the whole amount of the grease composition as a thickener, and contains at least one or more selected from an olefin sulfide, polysulfide, sulfide ester and oil-and-fat sulfide in an amount of 0.2-8 mass% based on the whole amount of the grease composition as a sulfur based extreme pressure agent having an amount of active sulfur at 150[deg.]C of 1-30 mass%.

190-- PATENT: VEGETABLE OIL DIELECTRIC FLUID COMPOSITION

Patent number: EP1995301
Publication date: 2008-11-26
Inventor: RAPP KEVIN JAMES [US]; GAUGER GARY ARDEN [US]; MCSHANE CHARLES PATRICK [US]; LEMM ARTHUR WARREN [US]
Applicant: COOPER IND INC [US]
Category: H01B3/22; C10M169/04; H01B3/20

A composition consisting of at least one vegetable oil and at least one antioxidant, wherein the composition has a pour point of less than about -20 DEG C, and wherein the pour point is measured according to either of ASTM D97 or ASTM D5950.

191-- PATENT: OXIDATION-STABILIZED OILY LIQUIDS BASED ON VEGETABLE OR ANIMAL OILS

Patent number: US2008262252
Publication date: 2008-10-23
Inventor: KRULL MATTHIAS [DE]
Applicant: CLARIANT GMBH
Category: C10L1/14B; C10L10/04; C10M169/04; C10M169/04F

The present invention provides oily liquids comprising A) at least one ester of fatty acids whose carbon chain lengths are between 8 and 30 carbon atoms, and a monohydric C1-C5-alcohol, at least 50% of the fatty acid radicals containing at least one double bond, and B) at least one alkylphenol-aldehyde resin, obtainable by condensing (i) at least one alkylphenol having at least one C6-C24-alkyl or C6-C24-alkenyl radical and (ii) at least one aldehyde or ketone to a degree of condensation of between 2 and 50 alkylphenol units.

192-- PATENT: BIODEGRADABLE HIGH OXIDATIVE STABILITY OILS

Patent number: AT415481
Publication date: 2008-12-15
Inventor: KODALI DHARMA [US]; FAN ZHEGONG [US]; DEBONTE LORIN [US]
Applicant: CARGILL INC [US]
Category: A01H5/10; C10M101/04; C11B1/00; C12N15/82C4B4

A triacylglycerol containing oil having a 1,3-dierucoyl-2-oleoylglycerol (EOE) content of at least about 50 % is described. Plants for producing an oil having a high EOE content are also described.

193-- PATENT: ESTERS AND MIXTURES THEREOF AND THEIR APPLICATION AS LUBRICANTS OR IN HYDRAULIC OILS

Patent number: EP1958932
Ester (I) comprising at least a branched univalent at least 4C alcohol as an alcohol part and an oligomer from 2-22C, preferably 6-22C monocarboxylic acid, is new. An independent claim is included for an ester mixture, comprising the ester with branched primary 4C alcohol, branched or linear 2-22C carboxylic acids and 2-4C carboxyl group.

**194-- TECHNICAL SIDE: BIOLUBRICANTS - GLOBAL TECHNOLOGY DEVELOPMENTS (TECHNICAL INSIGHTS)**

*Publication date: 30 Sept 2008*
*Author: FROST & SULLIVAN*

This research services profiles and gives a detailed outlook of the global technology advancements in the field of biolubricants, and provides a concise analysis of the R&D developments in this field of environment-friendly lubricants. Major types and overall applications of biolubricants are discussed together with their natural sources as well as the key industry participants. The market trends in this industry are mentioned as well, combined together with the drivers and challenges currently being faced by the biolubricant industry. To complete this research service, a comprehensive assessment of the R&D development by universities, smaller corporations as well as major industry participants is provided.

**Table of contents**

1. Executive Summary
2. Biolubricants: Technology Overview
3. Assessment of Industry and Technology
4. Assessment of Research and Innovation
5. Patents and Database of Key Industry Participants
6. Decision support database

**195-- TECHNICAL SIDE: NEW METHOD PROPOSED FOR THE ASSESSMENT OF LUBRICANT BIODEGRADABILITY DURING ITS USE**

*JOURNAL OF NEAR INFRARED SPECTROSCOPY*

*Volume: 16, Issue: 3, Pages: 291-296, 2008*

*Aranzabe E, Marcaide A, Arnaiz A, Gorritxategi E, Hernaiz M*

During operations using biodegradable oil for lubrication, the chemical structure of the biolubricant changes and, as a consequence, its biodegradability tends to decrease. Despite the fact that the biodegradability of most of the fresh biodegradable oils has been well determined, the monitoring of the biodegradability of oil during its aging has not been studied. Thus, the development of a monitoring method for on-Line measuring of lubricant biodegradability could provide a significant advance in lubrication and environmental management. In the present paper, the prediction of the biodegradability of a lubricant by means of near infrared (NIR) spectroscopy combined with advanced statistical techniques like PLS is presented. Three fully formulated ester oils and a biodegradable base oil without additives were selected for performing laboratory oxidation in a batch reactor at 140 degrees C using an airflux and aided by mechanical stirring. During the aging process of the oils, 35 aliquots were sampled at different
degradation times, in order to build a mathematical model which allowed the biodegradability of oil to be predicted.

196-- TECHNICAL SIDE: EFFECT OF CHEMICAL STRUCTURE ON FILM-FORMING PROPERTIES OF SEED OILS
Journal of Synthetic Lubrication
Volume 25, Issue 4, Pages: 159-183, October/December 2008
G. Bireshaw, G. Bantchev

The film thickness of seven seed oils and two petroleum-based oils of varying chemical structure was investigated by the method of optical interferometry. The measured film thickness ($h_{meas}$) was then compared to that calculated using the Hamrock-Dowson (H-D) equation. The result showed that the H-D equation adequately and without exception predicted $h_{meas}$ in the high entrainment speed region but not in the low entrainment speed region. In order to understand these deviations further, the chemical structural variabilities of the oils were quantified using empirical parameters, and its effect on film thickness in the low entrainment speed region was examined. The result of this examination indicated that, in the low entrainment speed region, the film thickness of seed oils (i) rarely correlates with viscosity as proposed by the H-D equation, (ii) increases with decreasing polarity of the oil, and (iii) increases with decreasing degree of unsaturation of the oils.

197-- TECHNICAL SIDE: FRICTION REDUCING PROPERTIES AND STABILITY OF EPOXIDIZED OLEOCHEMICALS
CLEAN - Soil, Air, Water
Volume 36, Issue 8, Pages: 700-705, August 2008
Kenneth M. Doll, Brajendra K. Sharma, Sevim Z. Erhan

The properties of epoxidized oleochemical methyl esters were studied. Epoxidized soybean oil, epoxidized methyl oleate, epoxidized methyl linoleate, and epoxidized methyl linolenate were compared with each other and with similar series of unmodified olefins. Several interesting trends were uncovered including: epoxidation of olefinic materials improves their oxidative stability, epoxidation of oleochemicals increases their adsorption to metal surfaces, and epoxidation has a deleterious effect on the pour point and viscosity index of the oleochemicals. In addition, a simple qualitative method where lubrication performance can be compared by examination of wear scars generated by ball-on-disk friction measurement under a simple optical microscope is reported.

198-- TECHNICAL SIDE: ANALYSIS OF THE POUR POINT OF COCONUT OIL AS A LUBRICANT BASE STOCK USING DIFFERENTIAL SCANNING CALORIMETRY
LUBRICATION SCIENCE
Volume 21, Issue 1, Pages: 13-26, January 2009
G. Ajithkumar, N. H. Jayadas, M. Bhasi

One of the major disadvantages of vegetable oils as base stock for lubricants is their high pour points. In this paper the crystalisation behaviour of coconut oil and the effect of additive addition and the chemical modification on its pour point were analysed using differential scanning calorimetry (DSC). Coconut oil showed the highest pour point among the vegetable oils considered in the study. This can be attributed to the predominantly saturated nature of its fatty acid constituents. Addition of additives did not show any significant improvement in the pour point of coconut oil. The chemical
modification procedures described in this work have been effective in improving the pour point of coconut oil to some extent. The DSC method used in the present work has been found to be helpful in understanding the crystallisation behaviour of vegetable oils with different fatty acid compositions, the effect of additive addition and the chemical modification on pour point of coconut oil.

199-- TECHNICAL SIDE: FEASIBILITY STUDY ON MEMBRANE-AIDED CLEANUP AND FRACTIONATION OF FATTY ACID ESTERS PRODUCED FROM WASTE FATS
CLEAN - Soil, Air, Water
Volume 36, Issue 10-11, Pages: 840-844, November 2008
Hubertus Wichmann, Tahir Sahlabji, Maren Ohnesorge, Roland Vogt, Müfit Bahadir

Significant efforts are being made to replace mineral oil by renewable raw materials in technical products such as lubricating oils. Energy- and cost-effective production and refinement routes for such oils, e. g., fatty acid esters, are in progress. In this context, a feasibility study is performed into whether the application of membrane-aided separation procedures is suitable for the hydrophobic matrix of fatty acid methylesters (FAME). It is found that an enrichment of saturated acid esters from 28 to 51% is possible in just three steps for an unsaturated fatty acid ester matrix. The free fatty acids content can also be considerably reduced. This cleanup effect can be enhanced by the inclusion of a basic additive.

200-- TECHNICAL SIDE: ELASTOHYDRODYNAMIC STUDY OF VEGETABLE OIL-POLYALPHAOLEFIN BLENDS
Lubrication Science
Volume 20, Issue 4, Pages: 283-297, October/December 2008
Grigor Bantchev, Girma Biresaw

Two polyalphaolefins, of higher and lower viscosity than vegetable oils, were used to make binary blends of varying compositions with soy bean and canola oils. The pure oils and the blends were used in viscosity and film thickness investigations. The effects of composition and temperature on viscosity were found to agree well with the theoretical predictions of a simple mixing law. The film thicknesses of the various blends under elastohydrodynamic conditions were measured at 20 N load, and varying entrainment speeds and temperatures. From the data, pressure-viscosity coefficients, \( \alpha \), as a function composition and temperature were obtained. The resulting \( \alpha \) values were compared with theoretical predictions. Experimental values of \( \alpha \) as a function of composition showed a slight negative or no deviation from the values predicted by an ideal mixing model. On the other hand, experimental values of \( \alpha \) displayed a mild decrease with increasing temperature, while the model predicted a sharp decrease with increasing temperature.

201-- TECHNICAL SIDE: SYNTHESIS AND CHARACTERIZATION OF BRANCHED-CHAIN DERIVATIVES OF METHYL OLEATE
CLEAN - Soil, Air, Water
Volume 36, Issue 8, Pages: 687-693, August 2008
Oliver D. Dalley Jr., Nicolette T. Prevost, Gary D. Strahan

Oleic acid is one of the most abundant fatty acid components of the triglycerides in many vegetable oils, such as cottonseed oil. As part of a project to develop new and expanded uses of oilseed products and by-products (such as biodiesel, fuel additives, and lubricants), studies were conducted on the synthetic conversion of oleic acid (in ester
In the framework of the Project IBIOLAB –

Document « FARR-Wal » - Avec le soutien de la Région wallonne – DG Agriculture

Réf. 2009_JR_01

form) to branched-chain fatty acid esters. In these studies, methyl oleate was brominated in the allylic position and subsequently treated with organocuprate reagents to produce novel branched-chain derivatives (ethyl, n-butyl, n-hexyl, phenyl). Details of the syntheses, characterization (GC/MS and NMR), and the properties of the products (with emphasis on low-temperature properties) are discussed. Several of the synthesized products exhibited significantly lower re-crystallization temperatures in comparison with methyl oleate and may prove useful as additives to biodiesel for use at low temperatures.

202-- TECHNICAL SIDE: WEAR IN ENVIRONMENTALLY ADAPTED LUBRICANTS WITH AW TECHNOLOGY

Journal of Synthetic Lubrication
Volume 25, Issue 4, Pages: 137-158, October/December 2008
E. Bergseth, M. Torbacke, U. Olofsson

The purpose of the study was to examine the tribofilm formation and the corresponding wear occurring in the boundary lubrication regime in environmentally adapted lubricants, i.e. when using synthetic ester base fluids with different anti-wear additives. AW additives of the following types were studied: phosphorus, sulphur-phosphorus and sulphur-nitrogen together with an additive based on carbon, hydrogen, oxygen and nitrogen chemistry. In addition, the base fluid itself was tested. Wear was studied in a pin-on-disc-machine giving the wear coefficient. The surfaces were analysed by glow discharge-optical emission spectroscopy, revealing the surface reactions formed by the additives. The results indicate that the wear number decreases with increasing reacted surface layer depth as well as with increasing oxide layer depth. Also, the results indicate that a highly polar base fluid give relatively low wear numbers even without additives.

203-- TECHNICAL SIDE: PROPERTIES OF DRY FILM LUBRICANTS PREPARED BY SPRAY APPLICATION OF AQUEOUS STARCH-OIL COMPOSITES

INDUSTRIAL CROPS AND PRODUCTS
Volume 29, Issue: 1, Pages: 45-52, JAN 2009
Kenar JA, Felker FC 1, Biresaw G, Kurth TL

Aqueous dispersions of starch-soybean oil (SBO) and starch-jojoba oil (JO) composites, prepared by excess steam jet cooking, form effective dry film lubricants when applied as thick coatings to metal surfaces by a doctor blade. This application method necessitates long drying times, is wasteful, requires the addition of sucrose to promote composite adhesion to the metal surface, and restricts the substrate geometry to planar surfaces. These issues represent important barriers to the commercialization of this aqueous biobased dry film lubricant technology. We now report an air-assisted spray method that uses readily available spray equipment to apply aqueous starch-oil composite dispersions as thin coatings (0.15-2.0 mg/cm(2)) to metal surfaces quickly and efficiently. Aqueous dispersions of waxy maize starch-oil composites containing either SBO, JO or hexadecane (HD), having 0.020-31.7 wt% oil relative to starch, were applied by air-assisted spraying and could be dried to the touch in approximately 30s. Additionally, sucrose was found unnecessary for adhesion of the sprayed coatings. Tribological ball-on-flat testing of metal specimens spray coated with starch-SBO, -JO, and -HD composites showed the thin films of starch-SBO and -JO performed better at reducing the coefficient of friction (COF) than the starch-hexadecane composites. A low COF ranging between 0.027 and 0.044 was obtained for the starch-SBO and -JO composites containing 4-5 wt% oil relative to starch. Above 4-5 wt% oil loadings, no further COF reductions were realized.
Further results revealed that micrometer-sized oil droplets embedded within the dried starch matrix of the composite film are delivered "on demand". It appears that when pressure is applied to the dry film lubricant, the starch matrix ruptures and releases the entrained oil to the friction surface.

**204-- TECHNICAL SIDE: END-GRAFTED SUGAR CHAINS AS AQUEOUS LUBRICANT ADDITIVES: SYNTHESIS AND MACROTRIBOLOGICAL TESTS OF POLY(L-LYSINE)-GRAFT-DEXTRAN (PLL-G-DEX) COPOYMERS**

TRIBOLOGY LETTERS
Volume: 33, Issue: 2, Pages: 83-96, February 2009
Perrino C, Lee S, Spencer ND

Comb-like graft copolymers with carbohydrate side chains have been developed as aqueous lubricant additives for oxide-based tribosystems, in an attempt to mimic biological lubrication systems, whose surfaces are known to be covered with sugar-rich layers. As adopted in the previous studies of the graft copolymer poly(l-lysine)-graft-poly(ethylene glycol) (PLL-g-PEG), which showed both excellent lubricating and antifouling properties, a similar approach was chosen to graft dextran chains onto the same backbone, thus generating PLL-g-dex. PLL-g-dex copolymers readily adsorb from aqueous solution onto negatively charged oxide surfaces. Tribological characterization at the macroscopic scale, either under pure sliding conditions or a mixed sliding/rolling contact regime, shows that PLL-g-dex is very effective for the lubrication of oxide-based tribosystems. The relative lubricating capabilities of PLL-g-dex copolymers compared with PLL-g-PEG copolymers were observed to be highly dependent on the molecular structure of the copolymers (in particular, side-chain density along the backbone) and the measurement conditions (in particular, time between tribocontacts); the PLL-g-dex copolymers with a low degree of grafted side chains (a parts per thousand currency sign20% grafting of available protonated primary amine groups along the backbone) showed better lubricating performance than their PLL-g-PEG counterparts at high tribocontact frequency (a parts per thousand yenca. 0.32 Hz).

**205-- TECHNICAL SIDE: EFFECT OF THERMO-MECHANICAL PROCESSING ON THE RHEOLOGY OF OLEOGELS POTENTIALLY APPLICABLE AS BIODEGRADABLE LUBRICATING GREASES**

CHEMICAL ENGINEERING RESEARCH & DESIGN
Sanchez R, Franco JM, Delgado MA, Valencia C, Gallegos C

This work is focused on the development of oleogels potentially suitable as biodegradable lubricating greases by studying the effect that some thermo-mechanical processing variables exert on their rheological properties and microstructure. Oleogels were prepared by dispersing sorbitan monostearate (SMS) in castor oil under different agitation conditions and thermal protocols. The effect of processing variables was evaluated by performing small-amplitude oscillatory shear (SAOS) measurements, AFM observations and some mechanical and tribological tests usually employed to check lubrication performance and stability of lubricating greases. Rheological properties of oleogels can be monitored in situ during processing using a rheo-reactor. Processing conditions such as maximum temperature applied to disperse the gelling agent, heating time, agitation speed and cooling rate significantly influence gel strength. Cooling profile is the most important processing variable affecting the rheological response of oleogels. Differences of more than one decade in the values of SAOS functions were found for
oleogels processed by applying different cooling profiles. A moderate agitation during SMS dispersion in oil yields maximum values of oleogel linear viscoelasticity functions. The maximum processing temperature reached during this stage should be only slightly higher than the SMS melting point. In general, oleogel samples exhibited a poor mechanical stability after sample working in a rolling element, but, on the contrary, they recovered completely their initial consistency after a moderate resting time, also exhibiting remarkable lubricant properties. Moreover, oleogel samples tested in a ball-disc tribometer show values of the friction coefficient inferior to those obtained with model lithium lubricating greases.

**206-- TECHNICAL SIDE: EVALUATIONS OF VEGETABLE OIL-BASED AS LUBRICANTS FOR METAL-FORMING PROCESSES**

*INDUSTRIAL LUBRICATION AND TRIBOLOGY*

*Volume: 60, Issue: 5, Pages: 242-248, 2008*

*Abdalquadir BL, Adeyemi MB*

**Purpose** - The purpose of this paper is to assess lubricating performances of selected locally produced vegetable oil-based lubricants with a view to utilizing them as a possible alternative to petroleum-based lubricants in metal-forming processes.

**Design/methodology/approach** - The ring compression testing and twin disks upsetting testing methods were employed.

**Findings** - The results obtained from these two tests showed that the red palm oil performed better than others at room temperature, followed by shea butter oil, while palm kernel oil performed the least. High-temperatures compression ring tests gave shea butter oil lower values of friction coefficients than red palm oil.

**Research limitations/implications** - Further work should be done on numerous vegetable oil-based lubricants. Also those that show promising performance could be further investigated with locally available additives.

**Practical implications** - These are numerous since increase in environmental interest has resulted in a renewed interest in vegetable oil-based lubricants.

**Originality/value** - The research work has broken new ground in finding applications for environmentally friendly lubricants in various areas of metal-forming processes.

**207-- TECHNICAL SIDE: THE GOVERNMENT OF CANADA INVESTS $3M IN OILSEED RESEARCH**

In June 2008, the non-profit college technology transfer center in industrial oleochemistry OLEOTEK, located in Quebec (Canada), has received 250 000$ from the Ministry of Economic Development, Innovation and Export Trade in the framework of the assistance program for the intensification of technology in business. This program intends to support SMEs in their innovation approach through the use of Technology Transfer Centers (CCTT). This financing will notably be used to develop OLEOTEK expertise in biolubricants.

Research activities that will be financed by the project grant are:
- development of biobased additives in order to increase lubricating properties or to increase performance in cold conditions.
- formulation of emulsified lubricants based on used frying oils in order to design total loss lubricants (like chain saw oils, demoulding oils)
- development of of a renewable biodegradable synthetic lubricant having high oxidative stability

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**In the framework of the Project IBIOLAB**
- development of a metal working fluid having high lubricating properties based on “structured” castor oil

The OLEOTEX new expertise in the field of biolubricants will be at the disposal of Quebec French SMEs from the lubrication sector in order to help them to develop environmentally friendly lubricants.

**208-- TECHNICAL SIDE: CALL FOR A NEW WORKING GROUP ON BIOBASED GREASES AT ELGI**

*Communication available on ELGI website (www.elgi.org) dated 3rd November 2008*

ELGI is exploring the formation of a Biobased Performance Working Group to engage those ELGI members who are involved in product development and/or are interested in increasing their knowledge of the performance of biobased products. Lou Honary from NABL center (University of Northern Iowa) has indicated his willingness to lead this working group and coordinate resources for increasing knowledge and awareness of the performance of biobased greases.

The group will address, among others, performance and relevant evaluation, testing and standards methods. Those interested in joining this working group should contact Carol Koopman at ELGI.

**209-- POLICY: THE LEAD MARKET INITIATIVE: A EUROPEAN STANDARD FOR BIOLUBRICANTS**

The Lead Market Initiative (LMI) for Europe was launched in December 2007 by the European Commission following the EU’s 2006 broad based innovation strategy.

The Lead Market Initiative objective for Europe is to foster the emergence of lead markets with high economic and societal value. On the basis of intense stakeholder consultations, six markets have been identified. These markets are highly innovative, respond to customers’ needs, have a strong technological and industrial base in Europe and depend more than other markets on the creation of favourable framework conditions through public policy measures. For each market, an action plan for the next 3-5 years has been formulated.

Bio-based products have been identified as one of these six markets. In the corresponding action plan, the lack of product quality standards for these products is quoted as a factor limiting the demand for bio-based products and standards are seen as essential elements in aggregating initial demand.

In September 2008, the EC has issued two standardisation mandates to the European standardization bodies. One of the two mandates, mandate M430, concerns the development of CEN technical specifications and European standards for biopolymers and biolubricants.

For biolubricants, the CEN technical specification will deal with biodegradibility, product functionnality, impact on greenhouse gas emissions and the amount of different renewable raw materials. The mandate M430 has been accepted on 19 February 2009 by the CEN BT/TCMG (BT Technical Committee Management Group). The standardisation work will take place in the CEN TC 19 “Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin”, this technical committee beeing
requested to prepare the technical specification and the European standard in a second step.

Concerning the second mandate (M429) for the elaboration of a standardization programme for bio-based products, the BT/WG 209 is requested to prepare a definition of the term “bio-based”

210-- LEGISLATION: GERMANY – END OF THE MARKET INTRODUCTION PROGRAM (MIP) FOR BIOLUBRICANTS

MIP for biolubricants has terminated since December 2008. MIP has started in 2000 and support through Market Introduction Measures (subsidisation) is generally not meant to be a permanent condition. Termination of the MIP in December 2008 was decided upon quite some time ago already. Support has been reduced step by step during the past 8 years.

211-- LEGISLATION: FRANCE – LUBRICANTS AWARDED WITH THE EEL EXEMPTED FROM THE TGAP (TAXE GÉNÉRALE SUR LES ACTIVITÉS POLLUANTES = THE GENERAL TAX ON POLLUTING ACTIVITIES)

In France, lubricants awarded with the European ecolabel for lubricants are exempted from the TGAP which amounted to 44,02€/ton in 2008.

212-- LEGISLATION: NETHERLANDS – LUBRICANTS BELONG TO THE PRODUCT GROUPS SELECTED IN THE ELABORATION OF THE DUTCH SUSTAINABLE PURCHASING POLICY

In the context of the elaboration of the Dutch sustainable purchasing policy, which should come into force in 2010, criteria are developed for around 80 product groups. A proposal is promoted to define “Lubricants” as a distinct product group, which is relevant for several other applications (in e.g. Mobile Equipment and others product groups) and for end users in general. The Dutch Water Management Agency (RWS) introduces the use of biolubricants for hydraulic applications in waterways. Compliance with the EEL criteria is stated as the best alternative. In addition they have introduced a knowledge centre on their intranet site to assist in this transformation to biolubricants.

213-- MARKET: NORTH AMERICAN BIOLUBRICANTS MARKETS

Publication date: 11 Feb 2009
Author: FROST & SULLIVAN

This study focuses on the Biolubricants Market in North America. Apart from providing industry trends such as drivers, restraints, challenges, unit shipment forecasts and competitive, it provides an opportunity analysis of key application areas based on their current penetration. In addition, future penetration levels have also been provided for various applications and sub applications. Furthermore, trends in the raw materials industry such as soy, corn, sunflower etc have been provided. Also discussed are the competitive factors, company profiles.

Table of contents:
1. Executive Summary
2. Analysis of the Total Biolubricants Market
3. Analysis of the Bio Hydraulic Fluids Market
4. Analysis of the Bio Metal Working Fluids Market
5. Analysis of the Bio Chainsaw Oils Market
6. Analysis of the Bio Concrete Release Agents Market
7. Analysis of the Bio Gear Oils Market
8. Analysis of Bio Greases Market

214-- MARKET: STRATEGIC ANALYSIS OF THE EUROPEAN MARKET FOR OILFIELD CHEMICALS
Publication date: 24 Oct 2008
Author: FROST & SULLIVAN

This research service presents a strategic analysis of the European market for oilfield chemicals. It provides definitions of the constituent market segments as well as an overview of the market structure. It also describes the challenges, drivers and restraints and their impact on the market. The analysis and the market forecast are presented by product type and geographic region. In addition, the competitive structure and strategic recommendations are also provided.

Table of contents:
1. Executive Summary
2. Introduction to Oilfield Chemicals
3. Industry Challenges
4. Total Market for Oilfield Chemicals
5. Drilling Chemicals Market
6. Cementing Chemicals Market
7. Completion and Workover Chemicals Market
8. Production Chemicals Market
9. Enhanced Oil Recovery Chemicals Market
10. Market Engineering Strategies
11. Competitive Database

215-- ON THE WEB: THE GROUP SOFIPROTEOL ACQUIRES 100% OF THE BELGIAN OLEOCHEMICAL GROUP OLEON

Sofiproteol, the financial organization of the French vegetable oils and proteins sector, has announced the acquisition – by its subsidiary Diester Industrie – of 100% of the shares of the company Oleon Holding NV from its Belgian shareholders (Ackermans & van Haaren - Sofinim, KBC Private Equity, Mercator Verzekeringen, Fortis Private Equity en Mr Jan De Clerck).

The Belgian group Oleon is a leading European producer of oleochemicals made of natural oils and fats. Oleon converts these renewable raw materials into 500,000 tons of fatty acids, esters, fatty alcohols, glycerin, dimers and other specialties. Those products combine high technical and environmental properties and are used by industrial companies in applications such as lubricants, detergents, cosmetics and hygienic products, coatings and paint.

Oleon employs 550 people and has 4 production sites in Europe, a new plant in Malaysia planed to start early 2009, and an international sales organisation.

The acquisition of Oleon is part of the strategy of sustainable development of the group Sofiprotéol, which – to complement priority markets of oil and protein plants for human

In the framework of the Project IBIOLAB --
and animal nutrition – is replacing part of the traditional petroleum based chemicals through renewable agricultural products.

**216-- ON THE WEB: ENVIRONMENTAL LUBRICANTS MANUFACTURING INC. SPINS OFF METALWORKING BUSINESS**

*January 2009*

Environmental Lubricants Manufacturing Inc. (ELM) spun off its metalworking fluids business to a group of minority shareholders, establishing a new company called Performance BioLubes LLC (PBL). Cedar Falls, Iowa-based ELM said the new firm was formed by the distributors of its metalworking fluid products and includes former ELM metalworking fluids manager Gene Tripp.

“PBL is the right choice for ELM to ensure that these superior-performing, bio-based metalworking fluids continue their success and expand their market share,” ELM founder and chairman Lou Honary said.

“ELM has informed its existing metalworking customers of this change and will continue to support these products through appropriate means. With product blending and quality assurance at ELM, there should be no interruption of services and product delivery,” added ELM technical manager Alan Burgess.

Honary said the move is aimed at increasing ELM’s focus on its core railroad and truck and food-grade lubricants and greases and other hydraulic and gear oils.

**217-- ON THE WEB: CIMCOOL GLOBAL FLUIDS INTRODUCES BOTANICAL METALWORKING FLUIDS**

*November 2008*

CIMCOOL Global Fluids (Cincinnati, OH) developed CIMFREE Botanical Fluids, a line of nine environmentally friendly vegetable-based products for high-speed machining and metalworking operations.

Having first pioneered the use of botanical lubricants decades ago, this product line expansion and use of renewable resources continues CIMCOOL Global Fluids’ longtime commitment to environmental conservation.

The fluids include CIMFREE VG-S175, which is free of mineral oil and chlorine, offers lubricity, is approved for medical alloys, and can be used in Swiss turning machines; CIMFREE VG-S110P is a blend of vegetable and mineral oils that offers thermal and oxidative stability, is low-foaming and chlorine free, and approved for medical alloys; CIMFREE VG-MF5350 is suited for stamping and drawing applications that require boundary lubrication, allows tight-radius applications, is washed from parts, and its lower viscosity makes application easier; CIMFREE VG-920M is an economical concentrate that can replace most semi-synthetic mineral oil products for general-purpose use (including ferrous and aluminum applications); CIMFREE VG-990M offers biological and corrosion control and is economical, and VG-991M is available for aluminum wire drawing applications; CIMFREE VG-901ZH offers lubricity for heavy-duty machining and grinding operations and contains no boron, nonylphenol ethoxylates, ethanolamines, or chlorine; CIMFREE VG-3900H is a machining fluid, reduces manufacturing costs, and offers lubricity and corrosion control; and CIMFREE VG-703ES is a low viscosity fluid designed for use where minimal-flow fluid delivery applications are required — it offers lubricity, cleanliness, and corrosion control, and is economical since it requires minimal usage.
218-- ON THE WEB: FUCHS COMMUNICATION ON (THEIR) BIOLUBRICANTS

Different articles in the trade press (articles in French):
MACHINES ET PRODUCTION N°877 – November 2008
Subject : Bases végétales- Les Plantocut
MACHINES ET PRODUCTION N°873B – September 2008
Subject : Lubrifiant en spray - Concept FUCHS ECOPLUS Spray

219-- ECO-LABELS IN EUROPE : EU ECO-LABEL- REVISION OF THE CRITERIA

As it was initially forecasted, the criteria of the European Eco-label for lubricants will be revised in 2009.

In a first step, a questionnaire from the Dutch Competent body Stichting Milieukeur SMK in charge of the revision process was sent in December 2008. This questionnaire was designed to identify the views of the different stakeholders on possible changes proposed by the consultatnt IVAM.

Answers to the questionnaire have been incorporated in a first background report in which IVAM has tried to reconcile different viewpoints where they existed. All the contributions to the questionnaire will be considered for the preparation of the first Ad hoc working group meeting that will take place in Brussels on Tuesday 3 March, 2009.

Among the conclusions and recommendations set in the first background report:

1) It is recommended that the criteria are revised along the following lines to:
   • Make the ecolabel in compliance with new EU regulations on chemicals policy,
   • Assess the influence of REACH on the EU ecolabel of lubricants
   • Increase harmonization with other environmentally relevant schemes and ecolabels especially those ones that apply to the marine environment
   • Avoid large modifications in the current criteria
   • Ease the application process by establishing a Lubricant Substance Classification List that states the aquatic toxicity and biodegradation classification of relevant substances
   • Simplify the application document and computerize the document
   • Start the application process by a list of all intentionally added or formed substances and their respective fraction in the formulation of the lubricant.

2) Critical focus points that are suggested for the revision are summed up below:
   • Increase the scope of the product group with some lubricant qualities that apply especially to the marine environment
   • To allow the use of test results on the biodegradation in marine waters and aquatic toxicity on marine organisms in the criteria document
   • Incorporation of a Lubricant Substance classification list (LuSC-list) to substitute the Annex II list in the EEL scheme
   • Reducing the environmental impact by reducing the fraction of very toxic substances that are allowed in hydraulic fluids and to remove the exception for biodegradation on thickening systems for greases
• Owing to the uncertainty if nanoparticles are used in lubricants and how to assess the risks of nanoparticles it is at this moment premature to add a specific criterion to nanoparticles.
• To limit the fraction of unassessed substances in the final lubricant.
• Not to modify the criteria to assess the potential bioaccumulative potential of a substance
• To include additional criteria how to assess polymers and unidentified substances as UVCB, characterized by a single CAS entry.
• To use concurrently CLOGP, LOGKOWWIN and SPARC as calculation methods for the bioaccumulative potential of neutral organic substances.
• Not to include a specific criterion on waste disposal
### 220-- ECO-LABELS IN EUROPE: LIST OF LUBRICANTS SUPPLIERS THAT GOT LICENSES (UPDATED 6 FEBRUARY 2009)

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<th>BLUE ANGEL Lub. and Form. Oils RAL-ÚZ 64</th>
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### In the framework of the Project IBIOLAB --

#### Document « FARR-Wal » - Avec le soutien de la Région wallonne – DG Agriculture

**Julie ROIZ**

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221—ECO-LABELS IN EUROPE: EVOLUTION OF COMPANIES AWARDED WITH AN ECO-LABEL (FROM JANUARY 2007 TO FEBRUARY 2008)