



Additives for biolubricants in compliance with European Eco Labelling (EEL)

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Topics :

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Company Highlights



- 1889** Foundation
Chlorinated Solvents
Rubber Substitutes (e. g. Faktis)
- 1956** First Production
of Lubricant Oil Additives
- 1961** Plastics Additives
- 1971** 100 % Subsidiary of Bayer AG
- 1987** Acquisition of W&L, today
Rhein Chemie Corp., USA
- 1990** Rhein Chemie Japan
Start of Production

- 1999** Start-up of Rhein Chemie
(Qingdao) Ltd., PR China
Acquisition of Elastochem Inc., USA
- 2004** 100 % Subsidiary of LANXESS
- 2006** Start of Production at LANXESS
India Private Ltd., Madurai, India
Expansion of Production at
Rhein Chemie Qingdao Ltd.
New Service Technologies
Production Facility at our
Headquarters in Mannheim



Company Profile 2007



Turnover: € 295 M (global turnover)
Sales volume: 77,200 metric tons (rubber-, plastic-and lube additives)
Employees: About 850
Customers: Around 9,000 in more than 120 countries
(Share of Lubricant additives business approx. 20 %)

Legal Entities:

- **Headquarters:** Rhein Chemie Rheinau GmbH, Mannheim, Germany
- Rhein Chemie Corporation, Chardon (OH), USA
- Rhein Chemie (Qingdao) Ltd., Qingdao, PR China
- Rhein Chemie LOA (Qingdao) Ltd., Qingdao, PR China
- Rhein Chemie Japan Ltd., Tokyo, Japan



European Eco Labelling (EEL) for Lubricants



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- First published 04/26/2005.
 - Revision after 2 years
 - Responsible : so-called „Competent Bodies“ (national authorities or institutes e.g. AFNOR/F, UBA/D, SMK/IVAM/NL).
 - Labelling for environmental friendly lubricants:
 - hydraulic fluids
 - greases
 - Saw chain lubes, demoulding oils and loss lubrication
 - two stroke oils
 - Only fully formulated lubes can be labelled



European Eco Labelling (EEL) for Lubricants



What the competent bodies need for EEL-approval ?

- Complete formulation
- Ecotox –datas of all ingredients – basestocks and additives

Additive suppliers can apply a „letter of compliance“ (LOC) for additives issued by one of the competent bodies



- Additives EEL-compliance already checked by one competent body
- LOC accepted and known by all competent bodies
- LOC is containing the max. treat rate of additives and packages for any specific EEL-application
- LOC is a safe guideline and instrument for the formulator of EEL-lubes

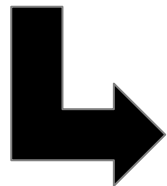


Properties of biolube-basestocks



Suitable Biodegradable basestocks for biolubes are

- Triglycerides – rape seed oil or sunflower oil
 - Good lubricity, poor oxidation stability, only ISO VG 32 grades
 - No rust protection and extreme pressure properties
- Special esters
 - Good lubricity, better oxidation stability, all viscosity grades available
 - No rust protection and extreme pressure properties
- Polyethylenglycols
 - Good oxidation stability, water-soluble
- Low viscous paraffinc oils and XHVI's
 - Only max. ISO VG 10



Performance Additives necessary

Additive Groups for biolubes



Extreme Pressure

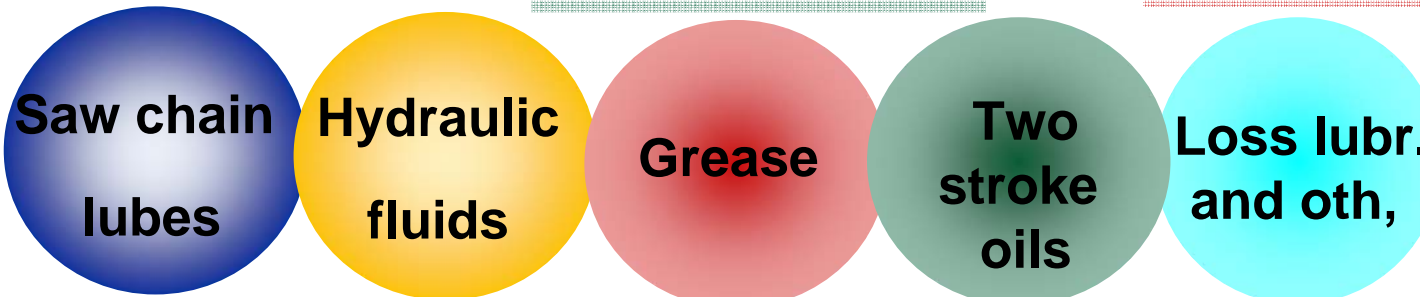
- Sulfurized Products
- Ester
- Triglyceride
- Hydrocarbon
- Polymeres

Anti-Wear

- Phosphorus Chemistry
- Ashless DTP
- P-Ester
- P-partial Esters

Corrosion Inhibitors

- Sulfonates
- Carboxylates
- Esters
- Amides
- Triazole derivatives
- DMTD-Derivatives



Packages

- Compressor
- Grease
- Hydraulic
- Metal working
- Turbine

Specialty Products

- Esters
- YM passivators
- Polymers
- Anti-hydrolysis agents

Antioxidant

- Phenolic
- Aminic



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Merci pour votre attention !

