



LUBRICATION
ENGINEERS,[®] *Inc.*

The Lubrication Reliability Source™

LE Enhanced Lubricants™



LIQUIDYNAMICS Storage Tanks



IFH Storage Units



Tote-A-Lube Storage Units



Reliability Accessories

Des-Case Breathers



Liquidynamics Hose Reel & Oil Pump



Oil Safe Containers



Kirkpatrick Group



Equipment



Reliability Monitoring

LEAP Oil Analysis



Esco



Controlling Contamination is the first step in practicing Reliability Centered Maintenance!

The Number #1 cause of failure in any application is due to **Contamination!** Since every operation has a sizable investment in the equipment that is owned or leased, and an investment in the lubricant that is purchased to protect that equipment, it only makes sense to protect both investments from contamination.

Best Practices Approach in Reliability Centered Maintenance: Controlling Contamination

If working lubricants directly out of drums: Best practices in Reliability Centered Maintenance would be to use a quality AMS or Des-Case filter cart to pull the oil from the drum, filter it, and then transfer the oil directly into the application. This is vital because as new finished lubricants are manufactured they have an exceptionally clean ISO Cleanliness Rating and this level of cleanliness should be maintained all the way to the point of use.

If working lubricants directly out of stationary bulk storage containers: Best practices in Reliability Centered Maintenance would be to use a quality Des-Case filter cart to filter the new oil, delivered in totes, drums or pails, as it is being transferred into stationary Liquidynamics, IFH, or Tote-A-Lube bulk storage containers. Again, this Reliability step is to control Contamination!

Reliability Accessories Aid The Reliability Program: Controlling Contamination

Des-Case Breathers – Since humidity and moisture is also a contaminate to new oil in storage, in high moisture or high humidity environments a desiccant breather is a critical Reliability accessory that will absorb the moisture from the air so as to prevent this moisture from being drawn into stationary bulk storage tanks or drums as they breath. Desiccant Breathers can be installed on the ventilation port on storage tanks or drums. Breathers are very inexpensive and highly effective!

Oil Pump & Spring Rewind Hose Reel – When working lubricants from stationary bulk storage containers, a Liquidynamics Spring Rewind Hose Reel setup is a Reliability accessory that will ensure “Contamination Free” new oil transfer from bulk storage containers directly to the equipment application. Using a Des-Case desiccant breather mounted on the bulk storage container and using a Liquidynamics spring rewind hose reel are the “Best Practices” Reliability choice to promote oil cleanliness and provide effective contamination control.

Oil Safe Containers – When working lubricants from stationary bulk storage containers without a hose reel setup or working lubricants from drums or pails, Oil Safe products are vital in protecting new oil from contamination as they are transferred to equipment applications. Many facilities use other oil transfer devices such as open-head galvanized containers, milk cartons, coffee cans, etc. to transfer new oil from storage directly to equipment applications. These types of devices, even though you can't see it as they rest atop of drums, are being filled with dust, dirt, and other environmental particles the human eye can't see. Next, the new oil is filled into these devices along with the dust and dirt and then poured into costly equipment applications. Oil Safe containers will keep containers free from outside contaminates to ensure “Contamination Free” oil transfer from lubricant storage to the equipment application. Furthermore, with Oil Safe containers, lubricants can be color coded with colored lids to match lubricants on hand, plus ensure the right lubricant gets into the right equipment application every time while eliminating lube mixing!

LEAP Oil Analysis Program – Is a Reliability Monitoring program that enables end-users of lubricants to monitor the condition of lubricants and equipment at certain intervals through a progressive oil analysis program. LEAP helps to accomplish two main objectives:

- 1) Establish the most effective and efficient oil change interval for maximum equipment productivity.
- 2) Prevent unscheduled downtime of equipment by identifying abnormal wear metal and contaminant concentrations before they can cause major problems.

ESCO Oil Sight Glass – Is a Reliability Monitoring accessory designed for installation on any equipment with fluid lubricant systems to allow the end-user to constantly visually monitor the color, clarity and purity of the lubricant fluid, plus aid in eliminating water from the equipment.

Lubrication Engineers[®], Inc. Consultative Support

- On-site Customer Support
- LE Corporate and Technical Support
- Provide Only The Highest Quality Lubrication Products
- Prompt Delivery
- Bulk Storage Containers
 - Disposable Bulk Tanks (275 Gallon Tanks)
 - 2800 lb Grease Tanks



- IFH Metal Storage Tanks
- Tote-A-Lube Poly Storage Tanks



- Implement Noria Corporation's Consulting and Education Services
- Implement Best Practices Lubricant Handling & Storage
 - Source For Breathers/Oil & Grease Pumps/Filter Carts
 - Source For All Lubrication Equipment
 - Source For Oil Safe Containers

- Implement A Comprehensive Lubrication Survey/Audit
 - Product Consolidation
 - Update Survey As New Equipment Is Installed
- Customized Equipment Identification Tags
- Implement Oil Analysis Program With Training That Covers:
 - Importance Of Oil Analysis
 - Where And How To Sample
 - How To Interpret Results
 - What Are We Trying To Accomplish
- Implement LE's ZAP Electrical Energy Savings Program
- Provider of ESCO Oil Sight Glasses to be able to see dirt, grit or water in reservoirs.



- Provider of Kirkpatrick Group Wire Rope Lubrication Systems for cleaning wire ropes and uniformly applying lubricants to them.



The Lubrication Reliability Source™

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LUBRICATION
ENGINEERS, Inc.

LEADERS IN LUBRICANTS

Founded on Excellence

Lubrication Engineers, Inc. was founded in 1951 and is dedicated to the philosophy of producing and marketing the world's finest lubricants. From the beginning, LE recognized the need for a diverse line of heavy-duty, high performance lubricants that exceed the specifications and capabilities of ordinary commercial grade lubricants.

LE products are made using only highly refined, select 100% paraffinic base oils and LE proprietary additives in our own manufacturing plant.

LE products are engineered to be cost effective for the customer. Field experiences and customer testimonials prove that LE products consistently deliver higher performance than other premium grade products and can significantly reduce downtime and maintenance costs, returning the initial price of the lubricant many times over.

LE products are marketed exclusively through local, highly trained and experienced Lubrication Specialists, dedicated to providing their customers the

best products and services available anywhere. They are capable of providing lubrication solutions for a wide variety of industries, equipment and special applications.

Unique Additive Technology

LE's own additive research and manufacturing company, The Almasol Corporation, and our complete research and development department continually develop more effective and efficient high technology additives and product lines. All this proprietary technology is incorporated into LE lubricants to ensure that they remain the finest available.

MONOLEC®: Vastly increases oil film strength and reduces friction, heat and wear by separating moving metal components and minimizing metal-



Lubrication Engineers Manufacturing Plant - Wichita, Kansas

to-metal contact. Should the oil's film strength break down, the MONOLEC reacts chemically to form a protective, synthetic lubricant which greatly increases the film strength of LE's engine and heavy-duty industrial oils.

ALMASOL®: Reduces friction, wear and chemical attack while withstanding extremely high loads and temperatures to 1,900°F (1,038°C).

QUINPLEX®: Provides superb water and moisture resistance, as well as enhanced "clingability." Greases with QUINPLEX resist "pound out" better.

PYROSHIELD® Products: Offer excellent non-leaded lubricity for extreme heavy-duty sliding, open gear and shock loaded applications.

Lubrication Engineers, Inc. is Your Single Source For:

- Greases
- Power Fluids
- Engine Oils
- Hydraulic Oils
- Turbine Oils
- Open & Enclosed Gear Lubricants
- Rock Drill Oils
- Compressor Oils
- Food Grade Lubricants
- Synthetic Lubricants
- Fuel Supplements
- Wire Rope Lubricants

Total Reliability Support for Every LE Customer

- Lubrication Specialists
- Technical Support
- LEAP Analysis Program
- Plant Surveys
- Bulk Tank Program
- ZAP Energy Savings Program
- Complete Product Line
- Advanced Technology
- Prompt Delivery
- Noria Consulting & Educational Services
- IFH Fluid Storage & Handling Tanks
- Tote-A-Lube Poly Storage & Dispensing Systems
- Des-Case Breathers & Fluid Handling Equipment
- Liquidynamics Lubrication Equipment
- Oil Safe Dispensing Containers
- Esco Oil Sight Glasses
- The Kirkpatrick Group Wire Rope Lubrication Equipment



Consulting and Education Services
On-site, public and web-based training courses, re-tainer-based services, consulting services, Lubrication Program Design (LPD).



Manufactures fluid storage & dispensing equipment, fluid transportation equipment, hydraulic oil reservoirs and fuel tanks.



Oil Sight Glasses
Clear oil sight glass makes it easy to observe oil contamination from dirt, grit and/or water.



Des-Case Corporation designs and manufactures a complete line of contamination control products for a wide range of industries and applications. They are a pioneer in breather technology for a wide variety of industrial applications. Des-Case breathers enhance the performance and longevity of hydraulically driven production equipment, as well as related oils and other non-aqueous fluids.



Lubrication Engineers' Analysis Program
A program that enables you to monitor the condition of lubricants and equipment through a progressive oil analysis.



LIQUIDYNAMICS™

Manufacturer of a wide range of oil and lubrication equipment to include complete tank systems, air operated oil and grease pumps, electric oil pumps, hose reels, drains, dispensers, extractors, meters and various accessory items, such as grease guns, measures, funnels, etc.



Dispensing Containers
The Oil Safe professional lubrication system is the lubricant handling system that makes plant and machinery lubrication easier, faster and cleaner.



Totes & tanks for bulk oil, lubricants & antifreeze in the lubrication equipment market. Tote-A-Lube are patented stackable poly tanks for the storage & dispensing of class IIIB fluids & chemicals.



AMS Filtration manufactures mobile and stationary filtration machinery, Vacuum Dehydration machinery and wound depth media filter elements for hydraulic, lube and dielectric oils of all types. AMS can also provide filter machinery to clean most oils in most applications. All of their machinery can be customized to meet your specific application needs.



Kirkpatrick Group Wire Rope Lubrication Systems are designed so that in only one application wire rope can have its surface and grooves scraped clean of product build-up while at the same time new lubricant is uniformly applied and injected into the internal strands for optimum penetration.