Newsletter on Eco-labelling and Eco-friendly Products

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Foreword

It is only recently that developments are in progress all over the world to work out technologies that can drastically reduce the environmental impact on issues concerning industrial oils and lubricants. Millions of litres of dirty oil used in automotive and other engines require replacement periodically. While there is some success in the recent past to clean the used engine oil for recycling, the development of oils that can be fully used as renewables is far from the fully effective eco-friendly lubricants that are now being used.

The ever increasing demand of lubricants for restarting machines will need appropriate technologies to enter for non polluting renewable lubricants that can be developed rapidly and made available in retail outlets. It is important to note that there are many aspects to be considered in developing proper and sustainable technologies. Biodegradability, toxicity, viscocity, friction level, reliability, spillage and availability as renewable material are some of the important requirements when costs and environmental considerations are considered against the existing mineral or synthetic oils.

While a lot many things can be included in this type of information requirements at ENVIS quarterly, limitations of space in the publication brings out only some of the important aspects of eco-friendly lubricants. A lot many organisations all over the world have now started developing new and improved technologies in respect of lubricants and in a couple of decades, may be we do expect substantial increase in renewable and eco-friendly lubricating oils and greases.

We do hope for a rapid change in usage of environmentally benign lubricants in both industries and transportation in the near future.

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ECOMARK CRITERIA FOR LUBRICATING OILS

(The Gazette of India, Extraordinary, Part II-Section 3(i), No. 364, Sept. 7, 1995)

1. GENERAL REQUIREMENTS : B

1.1. All lubricating/speciality oils shall meet relevant Indian Standards notified by Bureau of Indian Standards (BIS).

1.2. The product manufacturer must produce the consent clearance as per the provision of Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and Air (Prevention and Control of Pollution) Act, 1981 respectively along with the authorisation, if required under Environment (Protection) Act, 1986 and rules made thereunder to Bureau of Indian Standards while applying for the Ecomark

1.3. The product must display the list of critical ingredients in descending order of quantity present in per cent by weight, to be decided by BIS.

1.4. The product packaging may display in brief the criteria based on which the product has been labelled Environment Friendly.

1.5. The material used for product packaging shall be recyclable, reusable or biodegradable.

1.6. The product package or leaflet accompanying it may display instructions of proper use, storage, transport and recommend disposal guidelines after use and safe handling precautions so as to maximise the product performance and minimise wastage.

2. PRODUCT SPECIFIC REQUIREMENTS : B

2.1. Lubricating Oils (Virgin)
Following categories of oil are included :
A) Lubricants : Vegetable Oil based
b) Lubricants : Other than Vegetable Oil based

2.1.1 The product must not have toxic effect on aquatic organisms. EC 50/LC 50 shall not be less than 1.0 mg/litre.

2.1.2 The base oil, additives and formulated products must have per cent biodegradability as mentioned below
Lubricants Biodegradability Minimum
Lubricants (Vegetable Oil based) 90%
Lubricants (other than Vegetable Oil based) 60%

The above mentioned per cent biodegra-dability shall be tested as per OECD test method CEC-L-33-T-82, 21 days.

2.1.3 The product shall not contain toxic metals such as lead and barium. Antimony shall not be used in concentration beyond 0.25% when tested as per AAS method.

2.1.4 The product must not contain halogenated products such as PCBs, PCTs and PBTs as well as Nitrites.

Note: The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

2.2. Formulated Lubricants from Re-claimed/Re-refined Oils

2.2.1 The product shall contain more than 50% by volume re-refined/recyled products, reclaimed through environmentally compatible re-refining process.
Note 1: The manufacturer shall provide documentary evidence by way of certificate or declaration to this effect to Bureau of Indian Standards while applying for Ecomark.

Note 2 : The lubricants containing more than 2000 ppm of Halogens or more than 20 ppm of PCBs should be treated as Hazardous Waste and therefore shall not be re-refined/re-claimed.

2.2.2 The product shall meet the product specific requirements as per lubricating oils (Virgin) as mentioned at para 2.1.

Environmentally Friendly Lubricants - Biodegradable or Nontoxic

Over the last decade and possibly longer, biodegradation has been the predominant yard stick to measure how lubricants rate for being environmentally friendly. It was thought that the more completely a lubricant decomposes to harmless hydrogen-carbon-oxygen compounds, the better the lubricant will be for the environment. While a high degree of biodegradation can be a lubricant benefit, biodegradation alone does not provide a complete picture of how a lubricant impacts the environment. Consideration should also be given to different ways a lubricant impacts the environment.

For example, consider a lubricant that will be 100 percent degraded in 28 days. Is it still environmentally friendly if it is toxic and destroys or alters a significant portion of plant or animal life during the degradation process?

First, how is a lubricant defined as being environmentally friendly? What method quantifies its success? How do those who are developing environmentally friendly lubricants know if they are truly improving or merely maintaining the status quo?

Toxicity

A measurement to consider beyond biodegradation is toxicity. Determining the toxicity of a lubricant is crucial to establishing its status as environmentally friendly; however, in the past there has not been a test method that is simple, cost-effective and quick in evaluating the toxicity of lubricants. Numerous toxicity test methods have been available for years, and some of these traditional screening protocols have been used to evaluate lubricants. Some of the tests have adapted well to evaluating lubricants, others have required great modification and others

do not work at all. All traditional toxicity tests seem to suffer when testing lubricants because the methods tend to be suited for aqueous samples in contrast to lubricants that are nonaqueous.

Many toxicity tests attempt to determine the lethal dose (LD50) of an animal species being tested. The LD50 determines the amount of exposure the studied species can tolerate with a resulting 50 percent mortality rate. The species of animal studied is virtually limitless and can range from water fleas to sea creatures to mammals.

An alternative toxicity screening method is now available known as the Microtox® Rapid Toxicity Testing System. Developed in the late 1970s and commercialized by the Microbics Corporation, the ownership of the technology has gone through acquisitions and mergers since its development and is currently produced by Strategic Diagnostics Inc. in Newark, Delaware.

Spilled Lubricant

To work around the dilemma, a laboratory scale model of what would occur in the real world if there were an oil spill or accidental release of a lubricant into a body of water is produced. In reality, spilled lubricant will float to the water's surface and form a two-phase solution of water with an oil slick on top. Wind, sunlight, wave action and currents will stir and mix the two phases until the lubricant biodegrades, is physically removed from the water or the spilled lubricant becomes so dissipated it is no longer detectable.

Regardless of how the spilled lubricant is removed from the water, while it is present, there is potential for the water to extract toxic material from the oil into the water phase. It is this extraction process that can be duplicated in the laboratory. Using a known quantity of the pH-controlled saline solution to act as the water phase, a known quantity of the lubricant to be tested is added to the saline solution. This two-phase solution is placed in a laboratory shaker and agitated to duplicate water currents and wave action. Upon completion of agitation, the two-phase solution is separated and the water phase is tested in the Microtox® protocol. There is no formal procedure for the extraction process; however, ASTM D6081 "Practice for Aquatic Toxicity Testing of Lubricants: Sample Preparation and Results Interpretation" is an excellent reference and a good guideline to follow. Trial and error will dictate how long and how hard the solution is shaken with the goal being the more uniform and consistent the extraction, making for more reproducible final data.

Limitations

Like all toxicity tests, there are limitations to the bacteria used in the Microtox® test. In technical literature, it has been reported that the bacteria are less sensitive to some common contaminants (some metals and ammonia compounds) than other traditionally accepted toxicity protocols. Conversely, the bacteria are more sensitive to sulfur and sulfur compounds. Simply put, the Microtox® method results do not correspond one-to-one with the results produced by the other traditional toxicity methods, however a high degree of correlation exists. This does not make the Microtox® results right or wrong; it merely requires more consideration and evaluation of the results.

A distinct advantage of the utilization of bacteria as a test organism over other species is the population of bacteria utilized in a test verses other conventional species. In the Microtox® protocol, up to one million bacteria are utilized per test vial, while other protocol use significantly less.

In the United States there is an ASTM method, ASTM D5660 "Standard Test Method of Assessing the Microbial Detoxification of Chemically Contaminated Water and Soil Using a Toxicity Test with a Luminescent Marine Bacterium." The standard was developed in the mid-1990s, reviewed, and was published in 1996. More recently, the U.S. Environmental Protection Agency (EPA) has published a proposal to add Microtox® Toxicity Test Technology to the approved methods for Whole Effluent Toxicity (WET) testing. The proposal was published in the April 6, 2004 Federal Register and comments on the proposal are currently being reviewed by the EPA. If the EPA proposal becomes an accepted standard, testing for National Pollutant Discharge Elimination System (NPDES) permits would be able to use the Microtox® protocol.

No one screening test will provide the definitive evaluation of toxicity. There are simply too many variables affecting toxicity which are not capable of being compiled and measured by a single method of screening. However, a simple, low-cost, fast and reliable test such as the Microtox® Rapid Toxicity Testing System can be an effective tool to point to where other toxicity screening protocols may be necessary. At a minimum, the Microtox® protocol will give an indication of toxicity and how a lubricant might fit into the overall picture of being environmentally friendly.

How to check your oil ?

Remember to **check** your oil about every 1000 Miles. **B**

The optimal oil level means :

* you increase your engine's efficiency and cut fuel consumption.
* you reduce premature wear of engine components.
* you inhibit the formation of deposits and limit the development of corrosion.
* you reduce harmful emissions into the atmosphere.

Choosing the right oil is important for the performance and the life of your engine.

Your oil consumption depends on :

* your type of vehicle.
* your style of driving.
* the mechanical conditions of your engine.
* the weather conditions

If your oil consumption is more than 1 liter of oil per 1000 Miles, you should contact your garage .

How to do ?

Check your oil on level ground. Wait at least 5 minutes after switching off the engine.

Remove the dipstick

Wipe it. Replace and wait a few seconds before removing it again

Check the level with reference to the MIN and MAX marks. You should add oil if the level is below the MAX mark.

Add the oil a little at a time

Recheck the level and repeat the operation until it reaches the MAX mark. But don't go above it ! Replace the dipstick.

Recheck your oil level about every 1000 km. And have a good journey.

Http://www.totalmotoroils.com/lub/lubusa.nsf/VS_OPM/04A609 FC05366BA7C125732F006D80F5?OpenDocument

DEVELOPMENTS IN BIODEGRADABLE LUBRICANTS

Several newly developed vegetable oils--from soybeans, canola, corn, sunflower, lesquerella, and meadowfoam--could replace more expensive and less biodegradable synthetic chemicals for industrial uses, according to an ARS chemist in Peoria, Ill.

Researchers at ARS' National Center for Agricultural Utilization Research (NCAUR) in Peoria have developed and tested more than 50 new fluids derived from vegetable oils. They have also turned these vegetable-oil based fluids into replacements for petroleum-based materials.

Under a research agreement with Caterpillar Inc., in Peoria, the ARS scientists are learning which of their 50 plus new fluids have the most potential as base oils for lubricants. So far, two have been found to perform as well as petroleum-based lubricants, according to Sevim Z. Erhan, leader of oil chemical research at NCAUR. The payoff: U.S. agriculture benefits by increasing the demand for U.S.-grown agricultural products.

Environmental concerns have created a high demand for biodegradable lubricants and hydraulic fluids, but only two percent of the hydraulic fluids in bulldozers, tractors and heavy equipment is biodegradable.

The ARS approach might help make the use of biodegradable lubricants more successful. Rather than develop a final lubricant for a specific use, Erhan and her colleagues make simple chemical modifications to vegetable oils and test them for improvements before adding lubricating additives. These modifications enable a biodegradable product to perform nearly as well as a synthetic one, but at lower cost.

Biodegradable vegetable base oils cost about 35 cents a pound. In contrast, lubricant manufacturers face costs ranging from 25 cents for a base of mineral oil to $1.50 a pound for a base of synthetic esters.

Caterpillar engineers are testing the performance of one of the ARS-developed base oils.

ARS is the chief scientific research agency for the USDA. (United States Department of Agriculture)

Ref : http://www.ars.usda.gov/is/pr/2001/010326.htm

Eco-friendly industrial lubricant developed by scientists

A team of researchers from the University of Huelva, Spain, has developed an eco-friendly lubricating grease based on ricin oil and cellulose derivatives.The new formula does not include any of the contaminating components used to manufacture traditional industrial lubricants.

"The objective of this research was to develop a product that could be used as a lubricating grease but that was made only from natural materials and was therefore 100 percent biodegradable", said Jose Maria Franco, a chemical engineer at the University of Huelva and co-author of the study.

Environmentally friendly greases are "oleogels" that use cellulose derivatives from plants and ricin oil as a lubricant base.

According to Franco, these new formulations are an alternative to traditional lubricating greases, which create pollution that is difficult to combat once discharged into the environment.

Lubricants used in industry are made from non-biodegradable components, such as synthetic oils or petroleum derivatives, and thickeners made with metallic soaps or polyurea derivatives (a family of synthetic polymers).

These are currently the best performers, but they also imply more problems from an environmental perspective.

Millions of tones of hydraulic and industrial oils, and others from machinery are discharged each year into rivers, the sea and fields.

Mineral-based oils can contaminate groundwater for more than 100 years, and can prevent the growth of trees and prove toxic to aquatic life.

Only partial solutions have been found to date for this problem, such as substituting mineral oil for vegetable ones, but no alternatives had been found to the metallic thickeners, which are also highly polluting.

The new green grease provides an answer, although the scientists admit, "more research is needed" in order to perfect it's lubricating and anti-wear performance.

Franco said that the new material "has a similar level of mechanical stability to that of traditional greases, and it is highly temperature resistant, with rheological properties (viscosity) that do not change greatly, although we have observed that the material is expelled in large quantities when subjected to large inertial forces at high temperatures."

When this substance is used in bearings, it is important that it is not easily shed. This will reduce the lubrication frequency, thus maintaining the ideal functioning conditions for machinery for a longer time.

The researchers will continue to investigate this aspect in order to find a way of balancing the use of biodegradable ingredients to manufacture the grease while also optimizing its lubricating capacity. (ANI)

Ref:http://blog.taragana.com/n/eco-friendly-industrial-lubricant-developed-by-scientists-107105/

Bio-based Motor Oil Receives API Certification

G-OIL SAE 5W-30 motor oil, a bio-based motor oil from Green Earth Technologies, received certification from the American Petroleum Institute earlier this month, according to a press release on the company's Web site. The certification paves the way for G-OIL to carry API's official service symbol and make its way to retail.

"It's been almost two years in the making and a true team effort, but I am happy to say that G-OIL motor oil is finally ready for retail," said Jeffrey Loch, co-founder and chief marketing officer for Green Earth Technologies. "We are very appreciative that the American Petroleum Institute is officially standing behind our first motor oil weight to market, allowing our retail customers to stock, as well as our consumers to purchase, with confidence."

Although the company said it does not expect G-OIL 5W-30 to reach retail shelves until June, "bulk" oil will be made available much sooner to satisfy the fast-lube market. The company also plans to finalize the testing and certification process for 10W-30 and 5W-20 by the end of summer.

Made with American-grown renewable animal fats, G-OIL is biodegradable, according to Green Earth Technologies. "These saturated fats, whose molecular single-bond carbon chains are similar to common petroleum oils, have no harsh effects on the environment ..." the press release said. "Consider that it takes three barrels of crude oil to make one barrel of motor oil, but it only takes one barrel of animal fat to produce one barrel of G-OIL ..."

G-OIL motor oil will be priced comparatively to synthetics and similarly performing products, the company said.

http://www.moderncarcare.com/hotnews/bio-based-motor-oil-gets-api-certification.html

Can Oil Be Recycled?

Changing the oil in a car every 5,000 kilometers or so seems to be the industry standard (and may well be overkill). But that means a whole lot of pouring and draining motor oil into and out of the auto fleet.

So what happens to all that used oiland could it be recycled? After all, reusing that lubricant would not only avoid pumping it out of the ground in the first place, thereby delivering a little energy independence from foreign suppliers, it also might help cut climate-altering greenhouse gas emissions.

Can motor oil be recycled ?

Yes, oil can be recycled, said Mr. Joseph Franceschi and James Condela, Engineers of Universal Lubricants, Kans, in an interview with ScientificAmerican.com.

In general, crude oil is refined to make a lubricant. This is called base lube stock. This base lube stock is blended with additives in order to put it into a passenger car. That's what gives it color actually. An anti-foaming additive, a dispersant and a detergent are also added.

When the oil is put into the engine, it is essentially degraded by heating it, and is also oxidized. As all these additives start to break down, the engine starts to wear more. That puts some heavy metals into the oil. The anti-foaming additive breaks down and start to get water mixing with the oil and making sludge. The same breakdown happens with the dispersant and the detergent. That's the reason the Companies recommend to change it every X number of miles because of the thermal degradation and oxidation. Oil only has a certain life span.

The used oil is cleaned by using pretty conventional refinery technologies. One of them is vacuum distillation, which dewaters the oil. Used motor oil comes with somewhere between 5 and 7 percent water in it. The first thing one has to do is get the water out of it.

The next process is wiped film evaporation. This essentially separates out all the contaminants and additives that are put into passenger car motor oils. Next stage is hydro-treating process that gets up to 700 degrees Fahrenheit and 1,100 (pounds per square inch). That infuses hydrogen back into the hydrocarbon molecules and makes it's a very high quality re-refined oil.

Processes for refining used motor oil

Depending on the final product, used oil can go through various recycling stages, including:

- ? filtering the oil to remove any solids present in the oil
- ? demineralisation to remove inorganic material and certain additives
- ? propane de-asphalting to remove the heavier bituminous fractions
- ? distillation to physically separate the components of lubricating oil by boiling range
- ? solvent extraction to dissolve and remove undesirable compounds, and
- ? hydrofinishing to improve physical properties of a re-refined base-oil.

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Uses for recycled used oil

Used oil can be cleaned of contaminants and can be recycled again and again. There are many uses for recycled oil, including:

- ? industrial burner oil
- ? mould oil to help release products from their moulds (e.g. pressed metal products, concrete)
- ? bitumen based products
- ? an additive in manufactured products, and
- ? re-refined base oil for use as a lubricant, hydraulic or transformer oil.

What is lube to lube recycling?

Turning used motor oil back into lubricating oil is referred to as lube to lube recycling. Re-refined used oil is blended with additives to produce oil suitable for re-use in the same way as a 100 per cent virgin oil product. The re-refined base oil is tested to ensure that it meets strict health and safety standards.

Ref:www.environment.gov.au/settlements/waste/oilrecycling/publicatins/fs-used-motor

3rd Roundtable on Sustainable Consumption & Production, New Delhi, 11-12 February, 2010

There have been three Roundtables on Sustainable Consumption and Production (SCP) since September 2006. All were co-hosted by the MoEF and UNEP and the European Union extended financial support for the 3 programmers.

Major topics covered were :

Sustainable Agriculture
Sustainability of Indian Consumer Demand
Energy
Waste Management and
Water Management

It was agreed at the first Roundtable that these were indeed India's most pressing SCP concerns, although it was admitted that there were other areas too such as transportation and mobility.

Apparently, not much of action appears to have come out of these meetings. The third Roundtable on SCP was held in Feb 2010 at New Delhi. The latest objectives in this third Roundtable concerns a) revisit to SCB concerns b) taking stock of the existing practices, legislation, bottlenecks etc. c) discuss and agree improvements in SCP performances and d) providing inputs to Ministry of Environment and Forest delegation for the UN Commission on SCP-18 to be held in New York in May 2010.

As far as the Consumer Demand issues are concerned, the following various aspects requires to be considered.

1. The "consuming class" in the country is unfortunately following wrong consumption practices of the West.
2. This results in creating huge wastes.
3. Immediate need is creating awareness is the consuming class. Ecomark scheme not being popular is a major setback. Total overhaul and revival is needed to improve the situation.
4. Continued consumer awareness is needed even if eco-mark is made more effective.
5. Tightening up product standards, evolving guidelines for advertising claims and incentives norms are all necessary measures to uplift the system.
6. Success being noticed in BEE and PCAB initiatives requires to be consolidated.
7. Desperate range of measures such as support for comparative testing by independent third party units, dissemination of the test results and the most important aspect of) fiscal incentives/discriminatives for products are all required to ensure success in the above issue.

A concerted effort by all bodies concerned and sustained initiatives in policy formation and regular follow-up corrections where necessary can possibly change the existing scenario.

Source : 3rd India Roundtable on Sustainable Consumption & Production Note for India Delegation to CSD - By Mr. Rajan Gandhi, Society in Action Group (sag.delhi@gmail.com)

Renewable Lubricants

Introduction
Proper selection of a lubricant depends on understanding the lubricating regime (i.e., Film, Mixed, Boundary), established conventions of classifications, and an ability to interpret and apply the producer's product data specifications to the equipment.
Note: Without this background, it is impossible to make an informed selection or substitution.

Lubricant Classification
Professional societies and organizations have established classifications for Oil and Grease. The most widely encountered systems are those of the following organizations:
? SAE - Society of Automotive Engineers

? API - American Petroleum Institute

? AGMA - American Gear Manufacturers Association

? ISO - International Standards Organization

? NLGI - National Lubricating Grease Institute
Oil Classification
Oil is normally classified by Viscosity Grade, Additives, or Use. Some oils are classified as Non-Specialized industrial oils.

.(1) Classification By Viscosity Grade
Classification according to viscosity is the most prevalent method of describing oils. The most common classification systems are those of the SAE, AGMA, and ISO. Each organization uses a different Kinematic Viscosity range numbering system.

(2) Classification By Additives
Oil may be further classified according to the additives included in the oil to enhance its performance properties as follows:
? Inhibited - Rust and Oxidation Inhibited
? Anti-Wear (AW)
? Extreme Pressure (EP)
? Compounded
? Residual

The first three classes are discussed throughout this manual and require no further explanation; they contain the indicated additives.

Compounded oil contains from 3 to 10 percent fatty or synthetic fatty oils. It is also called Steam Cylinder Oil. The added fat reduces the Coefficient of Friction in situations where an extreme amount of sliding friction occurs. A very common application is in 'Worm Gear' systems.
A Renewable compounded oil may be composed of a High Oleic Base Stock (HOBS) and an Ultimate, or Readily biodegradable Synthetic Ester, i.e Chevron-Phillips SynFluid.

Residual Compounds are Heavy-Grade straight mineral oils or EP oils. These compounds are normally mixed with a diluent to increase ease of application. After application, the diluent evaporates, leaving a heavy adhesive lubricant coating.
Residuals are often used for Open Gear applications where tackiness is required to increase adhesion. This type of heavy oil should not be confused with grease. Residual oil with lower viscosity is also used in many closed-gear systems. Compounded oil may contain residual oil if the desired viscosity is high.

(3) Classification According To Use
This system of classification arises because refining additives and types of High Oleic Base Stock, (Corn, Soy, Sun Flower, Canola) may be varied to provide desirable qualities for a given application.
Some of the more common uses are:
? Bio Turbine Oils
? Bio Hydraulic Fluids
? Bio Engine Oils - Automotive, Aircraft, Marine, Commercial
? Bio EP Gear Oils
? Bio Slideway Oils
? Bio Wire Rope Lubricants
? Bio Bar & Chain Lubricants
? Bio Air Tool Oils
? Bio Cutting Oils - Coolants For Metal Cutting

(4) Non-Specialized Industrial Oil
This classification includes oils that are not formulated for a specific application and are frequently referred to as "General Purpose Oil" in the manufacturer's product literature.
These oils are generally divided into two categories: General Purpose and EP Gear Oils.

General Purpose (GP) Biobased Lubricants
General Purpose (GP) Biobased Lubricants contain R&O Additives, Anti-Wear agents, Anti-Foamants, and Demulsifiers. They may be used in mechanical applications where a specialized oil is not required. Their ISO viscosity ranges from about 32 to around 460. These oils are often referred to as R&O oils or Bio Hydraulic Fluids although they may contain other additives and are not intended exclusively for hydraulic use.

Some of these oils are more highly refined and provide longer life and better performance than others. These are usually referred to as Bio Turbine Oils or Premium grades.

Note: Although used in turbines, the name 'Bio Turbine Oil' does not mean their use is restricted to turbines, but refers to the Quality of the oil.

Bio EP Gear Oils

Bio EP Gear Oils generally have a higher viscosity range, from about ISO grade 68 to around 1500, and may be regarded as GP Biobased Lubricants with EP additives.
Although commonly used in gear systems, Bio EP Gear Oils can be used in any application where their viscosity range and additives are required.
Note: Bio EP Gear Oils should not be confused with SAE Bio Qualifiying Gear Oils specially formulated for automotive applications.

(5) Producer Brand Names
Oil producers often identify their products by names that may or may not be connected with standard classifications. For example, a name such as 'Bio Fluid XTBO' says nothing of its class. However, United Bio Lube's Bio Turbine R&O Fluid - ISO 68 indicates that it is a Biobased, Premium, R&O Oil with an ISO viscosity of 68.

Note: Regardless of how much information may be implied by the brand name, it is insufficient to select a lubricant. A user must refer to the producer's Product Information Brochures', 'Performance Data Sheets', and Material Safety Data Sheets to determine the intended use, additives, and specifications.

(6) Oil Producer's Product Data And Specifications

Product Data
Oil producers publish product information in brochures, pamphlets, handbooks, or on the product container or packaging. Although the amount of information varies, it generally includes the intended use, the additives (AW, EP, R&O, etc.), oil type (i.e., paraffinic, naphthenic, synthetic, compounded, etc.), and the specifications. Some producers may identify the product by its usage classification such as those noted above, or they may simply note the machinery class where the product can be used. often, both methods of identification are used. Intended use designations can be misleading.
For example, fact sheets for three different oils by the same producer indicate that the oils can be used for electric motors and general purpose applications. However, all three are not suitable for every application of this equipment. One oil contains no oxidation inhibitors and is intended for use where the oil is frequently replaced. The second is an R&O oil with the usual antifoaming and demulsifying agents. AW agents are also included. The third is a turbine oil similar to the second except that the refining method and additive package provide greater protection. One turbine viscosity grade, ISO 32, is treated to resist the effects of hydrogen used as a coolant in generators. Failure to notice these differences when evaluating the data can lead to incorrect application of these lubricants.

Note: Producers do not usually list additives. Instead, they indicate characteristics such as good antiwear qualities, good water resistance, or good oxidation resistance. These qualities are not inherent in oil or contained in sufficient quantities to provide the degree of protection necessary. Therefore, the user is safe in assuming that the appropriate agent has been added to obtain the given quality.

Note: Product literature also gives the Base Oil Type - i.e. Biobased: HOBS, Rapeseed, or Petroleum-based: Paraffinic, Naphthenic, Residual Compounded, or Synthetic. This is important when distinquishing between Renewable bio lubricants and Non-Renewable mineral oils and synthetics fluids advertising Biodegradability in their labels.

Producer Specifications
Producer specifications amount to a certification that the product meets or exceeds listed physical characteristics in terms of specific test values. The magnitude of chemical impurities may also be given. Producers vary somewhat in the amount of information in their specifications. However, Kinematic Viscosity (centistokes) at 40 and 100 °C (104 and 212 °F), Saybolt Viscosity (SUS) at 37 and 98 °C (100 and 210 °F), API Gravity, Pour Point, and Flash Point are generally listed.

Other physical and chemical measurements may also be given if they are considered to influence the intended use.
United Bio Lube provides extensive performance test data for all Biobased Lubricant products. Each biobased lubricant is engineered and tested to meet or exceed the most stringent military standards and commonly accepted professional society standands, such as ISO, SAE, and ASTM. The results of each scientific test method is clearly explained and tabularized into Product Information Broachures, Performance Data Sheets, and Material Data Safety Sheets.

Ref : Chapter 14 of "Renewable Lubricants " by Jeffrey Marth
Http://www.renewablelubricants.com/RenewableLubricantsManual_Selection.html

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