

ENVIRONMENTALLY PREFERABLE LUBRICANTS AND FUELS

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This presentation is about environmentally safe alternatives to petroleum products. Topics will include; characteristics of lubricants, measurements of biodegradability, measurements of toxicity, types of biodegradable products, types of base fluids and their effects on performance, and maintenance requirements of biofluids.

There is broad use of lubricants by the Army Corps of Engineers. Applications include; off road equipment, hand held equipment, pile driving equipment, cranes, lifts and power take off systems. Fluids and lubricants have multiple ways to enter the environment. For example hydraulic fluids circulate through systems and are exposed to the environment. Through routine wear, hoses and fittings can leak or break and release the lubricant to the environment. Chain saws fling oil into the environment through their design.

There is growing concern regarding the environmental impact and associated costs of lost lubricants. Industry experts estimate that 70% to 80% of hydraulic fluids leave their systems through leaks, spills, line breakage and fitting failure. This correlates to 7 million barrels of petroleum irresponsibly released to the environment. Petroleum is persistent and toxic. It damages living organisms including plants, animals and marine life for a long period of time. In addition the EPA and local governments are increasing the range of responsibility of lubricant releases including significant fines and clean up costs.

The “environmentally friendly” or “green” lubricants are being developed to utilize renewable resources that will degrade rapidly upon contact with the environment. There is a range of definitions being utilized to determine environmental preferability, however, there remains no universal definition. It is important to know not only the manufacturers definition of environmental safety of biodegradability, but also the performance limitations of the product. The product must be considered in a total life cycle assessment “from cradle to grave” which includes the performance chemistry, base fluids, manufacturing conditions, ability to be recycled, disposal and packaging.

Through proper selection and maintenance, bio-based, biodegradable lubricants can be used that will protect both the environment and the equipment.

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