Deployment of efficient lubricants at Evonik – Benefits of DYNAVIS® and NUFLUX® technology

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Modern lubricants enable the operation of industrial plants with high reliability and efficiency. However, in the past, equipment was often operated with simple, readily available standard lubricants, which meant that their full potential was not realized. The reasons for this are the supposedly lower costs when using the established standard oils and the experience or acceptance of the current state in terms of performance and relatively short oil change and maintenance intervals. A modification always requires a certain amount of effort and thus resources, which are usually scarce and used elsewhere.

A trigger for performing an oil change is to know the alternatives and the knowledge of the effects and the associated overall cost reduction opportunities, as well as the savings on maintenance and GHG emissions.

Evonik has quantified the influence of lubricants on the service life and performance of equipment over decades in the laboratory and in real-world performance demonstrations. Today, high-performance lubricants play an important role in Evonik's path to a more sustainable future. High tier fluids based on DYNAVIS® and NUFLUX® technology ensure greater efficiency and more reliable operation of the equipment with extended oil change and maintenance intervals. However, the implementation of new lubricants in industrial machinery is often hindered by several hurdles, ranging from a lack of knowledge about the benefits, a higher initial oil price to the missing risk assessment of a change, among others.

This presentation is outlining the approach of technology deployment at Evonik's production sites. This has enabled the implementation of advanced hydraulic fluids and industrial gear oils in various types of machines that are in operation. Longer equipment life, less downtime for maintenance, and lower costs associated with energy savings have confirmed a very short return on investment. Upgrading lubricants is a quick, easy to implement, and very effective way to reduce total cost of ownership.

Individual results are presented for selected hydraulic and industrial gear applications. Significant energy savings and/or operating temperature reductions have been achieved. The higher energy efficiency and obvious cost advantages are also accompanied by a reduction in greenhouse gas emissions, the quantification of which will be presented as an example in the context of a cradle to grave LCA. Optimizing the plants through oil changes delivers an important contribution to Evonik's sustainability goals.

The presented methodology can be used to convert industrial companies and their internal equipment to use more advanced, high-performance lubricants. Cost savings are just an oil change away.

About the Author

Frank currently holds the position of “Global Technology Manager” at Evonik´s Business Line Oil Additives. He has responsibility for the product and project portfolio of the Industrial lubricant segment with a focus on e.g. Hydraulic and Agricultural Fluids. He has joined Evonik in the year 2009 as “Global Product Manager Fuels” dealing with fuel additives, especially cold flow improvement of biodiesel, triglycerides and crude oils. Frank has studied Chemistry and finished his PhD thesis at Georg-August-University Göttingen (Germany) on a topic of polymer reaction kinetics. He is chairman of the Industrial Working group at ATC, the Technical Committee of Petroleum Additive Manufacturers in Europe, and author of several papers and patent families in the fields of industrial lubricants, polymer synthesis and their application.