

Lubricant Challenges in Wind Turbine Applications

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Abstract:

Wind turbines are getting bigger. Power output from the space they occupy increases. They are also being built in even more remote locations, particularly offshore. This makes the prevention of breakdown even more critical to operators than ever before. Less common forms of damage can also appear as the components grow. Micropitting and white etched cracking are two famous examples. Repair or replacement of a component in a huge, remote turbine can cost an enormous amount of money, even more when the shutdown of operation is considered.

Lubricants can play a key role. As the turbines grow the life of their components becomes tougher and failures more likely. Standard lubricants just won't do the job, they need specially designed oils and greases, focused on these special conditions. Properties such as viscosity and the way it varies with temperature, base oil type and additive chemistry, and the way they all work together define whether a focused lubricating oil will be a success or expensive failure. With grease these are all important, but the thickener adds yet another, complex level.

At the same time, it is tempting to compromise. A different lubricant for every component adds even more complexity to the already complex life of the operator or turbine maker. On the other hand, using one lubricant to replace others especially on bearing conditions that are not the same can have negative effect on life time. This paper examines its impact on a trial turbine fleet, both the good and bad sides.

Biography:

Olav Hoeger started 1982 in Shell and graduated as Engineer Chemical Engineering in 1990. Since then he has worked for Shell in various position as laboratory manager and Project Engineer at their Technology Centre in Hamburg and as Technical Service Manager for Lubricating Greases. At present he is project Engineer for Aviation greases. He has accumulated more than 35 years' experience in Lubricants and Grease Development and Technical service activities around Lubricants products.

