Case Study

NYE LUBRICANTS SUCCESS STORIES

CONFIDENTIAL

Industry: Power & Utility

Application: Wind Turbine

Component: Slip-Ring

Time Period: October 2010 - October 2011

BACKGROUND

An industrial materials and electrical components manufacturer in Europe contacted Nye about a problem in their wind turbine application. The company was using a grease that was forming a black debris around the lubricated slip-rings used in the wind turbines. The slip-rings, made from gold rings and gold fingers, help to facilitate signal and power connections between the rotating blade shaft and stationary generator of the wind turbine. The slip-rings ride along as the assembly rotates. A lubricant is needed to protect the metal surfaces and prevent wear.

For more information, contact our technical expert.

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CHALLENGES

Can a Nye product eliminate the formation of debris on the application over time?

SOLUTION

1. Nye tested the grease in the application and found the presence of a hydrocarbon in the lubricant, possibly leading to the contamination during assembly.
2. Nye suggested testing our PFPE products on the slip-rings.
3. Both UniFlor™ 8900 and UniFlor™ 8950 were tested by the material components company.
4. Both lubricants resisted the generation of the black debris with 8950 displaying better performance.
5. UniFlor™ 8950 is a denser grease with a higher base oil viscosity than UniFlor™ 8900.
6. During maintenance of the application, technicians were using aerosol spray cans to apply the previously used lubricant. Nye suggested using a different application method as the carrier solvent may have be the source of the hydrocarbon contamination.

Wind Turbine

Lubricant Properties		UniFlor™ 8950	Test Method
Base Oil		PFPE	
Thickener		PTFE	
Temperature Range		-90 to 225°C	
Kinematic Viscosity	40°C	5.6 cSt	ASTM D-445
	100°C	17.7 cSt	
Viscosity Index		300	ASTM D-2270
Flash Point		None, Non-Flammable	ASTM D-92
Pour Point		-90°C	ASTM D-97
Evaporation (22 hours, 150°C)		6%	ASTM D-972
Density (20°C)		1.824 g/cm³	ASTM D-1480

RESULTS

The company settled upon UniFlor™ 8950 as the replacement for the previous lubricant.