EPT™
CLEAN OIL

LUBRICANT CHEMISTRY MANAGEMENT

SVR® OIL VARNISH REMOVAL SYSTEM

Solar Turbines 10+ Year Case Study

- ***Location:*** *AB, CANADA*
- ***MW:*** *10 MW*
- ***Oil Type:*** *PetroCan Turboflo XL 32*
- ***Volume:*** *4500 Liters / 1189 Gal*
- ***Turbine Model:*** *Solar Mars*

From the moment lubricants are put into service, they chemically breakdown. The primary pathway: oxidation.

Unaddressed by routine maintenance, dissolved oxidation waste material remains in the oil. The result: oxidation material, more attracted to metal surfaces than the oil itself, deposits on mechanical surfaces.

The solution: SVR® Lubricant Conditioning System utilizing patented ion-exchange ICB® filter elements. Through continuous operation, SVR removes dissolved oxidation waste material and varnish at the molecular level, maintaining optimal lubricant quality 100% of the time.

Through full-time, continuous treatment, SVR stops the contamination cycle in its tracks, cleaning the lubricant every time it cycles through the kidney loop circuit. Only by managing oxidation levels and removing oxidation material as it is generated can the root cause of lubricant deposits, or varnish, be eliminated.

Target the underlying cause of turbine lubricant failure with the SVR Oil Varnish Removal System.

BACKGROUND

A user replaced the lubricant in their base load unit. After the replacement the user began to experience varnish and foaming issues, believed to be related to contamination left over from the previous brand of oil. SVR® 600 resolved the foaming issue shortly after installation and reduced MPC varnish in the first 2 months. Based on the performance of SVR 600, and the criticality of the operation, the user elected to permanently install SVR 600 to manage lubricant quality and added 5% top up oil each year. The long-term results of this approach have been extraordinary.

Normal turbine oil life cycle on average is 6-8 years, with replacement a function of high acid number in combination with <25% additive. In the case of this user, the oil has been operating for just over 10 years with 88% remaining Amine additive and no increase in acid number. That is an additive loss rate of <1% per year, which is unprecedented in the gas turbine application. Also of note, the MPC value has been maintained below 2 for the entire life of the lubricant.

Using this approach, the lubricant remains at new oil quality after 10 years, with another 10-15 years of life probable with these ultra low additive consumption rates.

WITH SVR® 600 INSTALL

Turbine Model: *Solar Mars*

Oil Age: *91,042 hours*

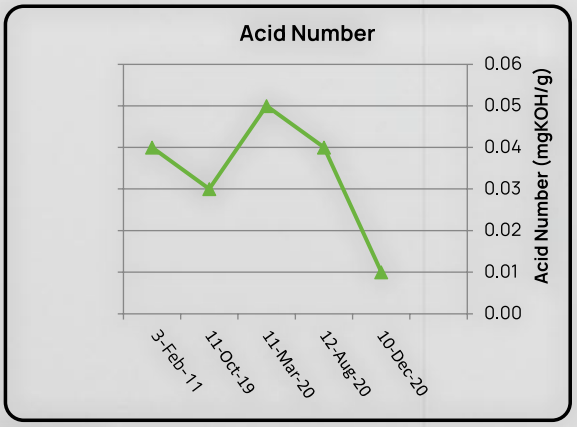
1. Significantly reduce oxidation

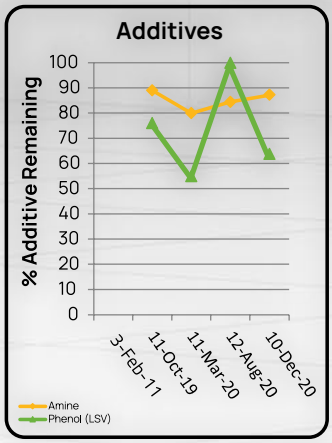
a. Over the reported 10 years base load operation, MPC and Acid Number have never increased.

b. While it would be standard practice to replace the oil at this stage, the oil remains at new quality with 88% remaining life (Amine primary antioxidant).

2. Significant increase in additive life

a. Normally the additive from new oil top up is quickly consumed as a function of accumulated oxidation materials, making it impossible to significantly extend oil life with top up alone. In this case, since SVR has prevented any oxidation material accumulation, the effectiveness of new lubricant top up increased significantly.

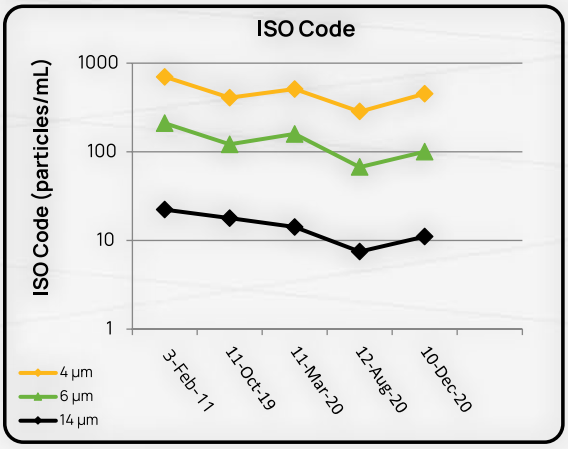




MPC Varnish Potential in Chronological Order (L to R)

Start Date
03-Feb-11

End Date
10-Dec-20



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THE BEST WAY TO DEAL WITH VARNISH IS TO NEVER HAVE TO.

USER ROI WITH SVR 600 INSTALL

Cost: SVR® 600 purchase and the cost to operate* for 10 years = $54,000

*Year one, depending on the cleanliness of the system, will require two to three sets of filters. Once the system is clean, only one set of filters is required per year thereafter.

Benefit: The net value of 10 years base load operation without any interruptions is priceless. Why wait for the costs of varnish to impact production and profitability.

USER ROI WITHOUT SVR 600 INSTALL

Cost: Flush and Replace Lubricant = $75,000

Cost: Downtime to flush and replace lubricant (3 days) = $28,800

Cost: Varnish related trip or failure $10,000+ per day

Want to find out more? Be in touch.
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