
SIDE-STREAM FILTRATION OF SOLAR MARS 100 REMOVES CRITICAL VARNISH DEPOSITS AT CO-GENERATION PLANT

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Case Study

SYNOPSIS

A Solar Mars 100 turbine had developed critical varnish deposits at a municipal co-generation plant. To avoid shutting down the turbine for cleaning, a side-stream particulate filtration and varnish absorption system (VAS) was used to bring the Membrane Patch Colorimetry (MPC) value down from 61 to 5.

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Solar Mars 100 Turbine At A Cogeneration Power Plant

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INTRODUCTION

When high levels of varnish were detected in a Solar Mars 100 Turbine at a Cogeneration Power Plant, the city and Solar contacted Reliable Industrial Group (RIG) for possible solutions. RIG was able to provide experienced personnel, equipment and materials needed to successfully execute varnish mitigation on the turbine lube oil system without shutting the turbine down.

RIG's full-service solution included:

- Installation of RIG's varnish absorption system (VAS) to run side stream filtration
- Training on site personnel to monitor and operate the VAS equipment
- Provide sample bottles and shipping labels for oil analysis to verify results

THE TECHNOLOGY

- RIG's varnish absorption technology is resin based polar attracting technology. Our 10 GPM VAS system is designed for reservoirs up to 5,000 gallons. System has a dual varnish absorptive housing—20" diameter x 40" long, followed by a 640-series pleated micro-glass filter housing.
- Two varnish removal elements—with 5,000 gallons of turbine oil—are designed to lower varnish MPC value from an MPC of 42 to less than 25. For additional filtering, two additional elements may be added to get below 15 MPC.
- In applications where water is greater than 500 PPM, a vacuum oil purifier is required to lower dissolved water to less than 100 PPM.

RESULTS

RIG was able to perform the varnish mitigation services with the system online, assuring the system free from varnish deposits and extending the life of the oil. The particle count was brought down from a 17/15/12 to a 15/13/10 and the Membrane Patch Colorimetry (MPC) value down from 61 to 5 utilizing the Varnish Adsorption Skid.

RECOMMENDATIONS

After the initial varnish removal, RIG recommended that the client perform an annual turbine oil analysis including varnish potential testing on all critical systems. In addition, incorporating oil filtration and reservoir cleaning into the maintenance turnaround schedules will help prevent unscheduled downtime due to lubrication cleanliness.

For additional information on RIG's lubrication services and more please visit www.therigteam.com and follow us on LinkedIn at <https://www.linkedin.com/company/reliable-industrial-group>

SIDE-BY-SIDE LAB ANALYSIS

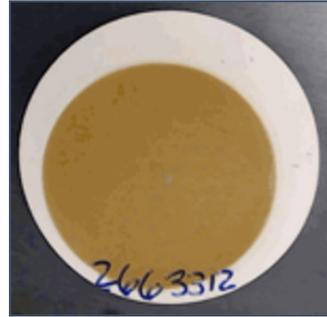


Figure 1. Original Lab Analysis Membrane Patch Colorimetry MPC 61

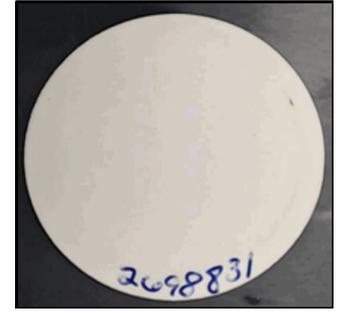


Figure 2. After—MPC Value: 5

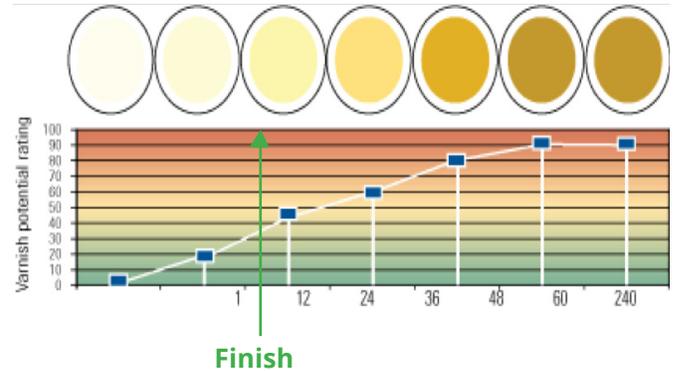


Figure 3. Varnish Potential Rating

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