In-Service Lubricant and Machine Analysis, Diagnostics, and Prognostics

JAI Guest Editor:
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Foreword

THIS COMPILATION OF THE JOURNAL OF ASTM INTERNATIONAL (JAI), STP1536, In-Service Lubricant and Machine Analysis, Diagnostics, and Prognostics, contains only the papers published in JAI that were presented at a symposium on In-Service Lubricant and Machine Analysis, Diagnostics, and Prognostics held during December 8, 2010 in Jacksonville, FL. The symposium was sponsored by ASTM Committee D02 on Petroleum Products and Lubricants and Subcommittee D02.96 on In-Service Lubricant Testing and Condition Monitoring Services.

The Symposium Co-Chairs and JAI Guest Editors are Allison M. Toms, GasTOPS Inc., Pensacola, FL and Amy Fentress, Lubrication Engineers, Wichita, KS.
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Overview

This publication contains the presentations delivered at the “Symposium on In-Service Lubricant and Machine Analysis, Diagnostics, and Prognostics,” on December 8, 2010 in Jacksonville, Florida, sponsored by D02.CS96. In 1999, D02.CS96, In-Service Lubricant Testing and Condition Monitoring Services Industry Support, was formed to address the needs of monitoring in-service oils. This symposium showcases the progress made in the past decade and highlights the future direction of the CS96 subcommittee.

The standards developed and being developed by this subcommittee provide equipment users with a known basis for the quality of the data they are receiving which Garvey highlights by demonstrating the return-on-investments that can be achieved through proper oil condition monitoring. Toms and Wooton stress the necessity of alarm limits to properly interpret raw lubricant test data and demonstrate how remaining useful life diagnostics of machinery and fluid relies on trending.

With expanding use of alternative energy, comes new oil condition-monitoring demands. Livingstone, Ameye and Wooton address optimizing an oil condition-monitoring program specifically for wind turbines. Pigeon and Abellaneda present the impact of biofuels on lubricant dispersancy and health.

The latest laboratory and field techniques for in-service lubricant and grease analysis were presented. These papers included an alternative use of linear sweep voltammetry for diesel engine oil by Fentress, Sander and Ameye, to monitoring particles, color and water by Canty, and the latest in Fourier transfer infrared lubricant condition monitoring by Pinchuk and van de Voort. The importance of in-service grease analysis was covered by Turner.

Walsh, Barraclough, and Henning offered a historical overview of the role of wear particles in oil condition monitoring, followed by a presentation demonstrating the application of scanning electron microscopy for particle counting and classification by Herguth.

Recent developments in online oil condition monitoring sensors and their alignment with ASTM methods and practices were highlighted by Lunt.

The experiences with ASTM D02 Practices D4378 and D6224 for Turbine oils and Auxiliary Power Plant Equipment Condition Monitoring Programs by Wardlow and Ameye concluded the program.

We wish to acknowledge the prompt response and cooperation received from the authors, reviewers, and the ASTM staff to make for a successful
symposium and subsequent efficient publication of this volume. The success of the Symposium and this publication are possible because of the efforts and commitments of the authors, reviewers and their companies. Thank you.

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