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Hydraulic fluid power — Fluid contamination — Determination of particulate contamination by the counting method using an optical microscope

Transmissions hydrauliques — Pollution des fluides — Détermination de la pollution particulaire par comptage au microscope optique

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/TC 131, *Fluid power system*, Subcommittee SC 6, *Contamination control*.

This third edition cancels and replaces the second edition (ISO 4407:2002) which has been technically revised.

The main changes are as follows:

— more detailed procedure for automated particle counting by image analysing software.

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Introduction

Fluids are used for a multitude of reasons over an array of industries. Whether they are used for hydraulic power, lubricating or operational fluids, the presence of particulate contamination adversely affects the fluids properties. This reduces the fluids capabilities and performance that can lead to damage of components, equipment and eventual system failure.

The level of contamination in a fluid has a direct impact upon its performance and reliability.

Quantitative determination of particulate contamination requires precision in obtaining a representative sample of the fluid to accurately ascertain the level of contamination. The method of particle counting using an optical microscope is an accepted means of determining the extent of contamination. The accuracy of particle counting can be affected by the different techniques and methods used. The accuracy when using the automated method described in this document is typically in a range of +/- one ISO code according to ISO 4406.

This document details procedures that are acceptable methods for each step of the process of removing particulate contamination from a fluid for analysis to achieve a uniform method, both manual and automated, for particle counting. These steps include sample preparation, vacuum filtration, filter membrane preparation and, both manual and automated counting methods.