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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

Reference number
ISO 4407:2002(E)

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Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Terms and definitions 2

4 Counting principle 4

5 Apparatus 4

6 Reagent and chemicals 6
6.1 Reagent and rinsing and cleaning chemicals 6
6.2 Liquids for transparentizing the membrane filter (transmitted-light method) 6

7 Glassware cleaning procedure 6

8 Calibration procedures 6
8.1 Microscope calibration 6
8.2 Determination of Effective Filtration Area (EFA) 7

9 Membrane filter preparation 7
9.1 Sample preparation 7
9.2 Blank analysis 8
9.3 Separation of contaminants by vacuum filtration 8
9.4 Evaluation of suitability for counting 9
9.5 Mounting of membrane filters for observation under transmitted light 10

10 Particle sizing and counting procedure 10
10.1 Particle sizing 10
10.2 Selection of nominal magnification 10
10.3 Statistical counting procedure 10
10.4 Calculation of total count 11
10.5 Verification of data 12

11 Expression of results 13

12 Identification statement (Reference to this International Standard) 13

Bibliography 14

Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4407 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 6, *Contamination control and hydraulic fluids*.

This second edition cancels and replaces the first edition (ISO 4407:1991), which has been technically revised.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. The liquid is both a lubricant and power transmitting medium.

The presence of particulate contamination in the liquid interferes with its ability to lubricate and causes wear to the components. The level of contamination in the liquid has a direct bearing on the performance and reliability of the system, and should be controlled to a level appropriate for the system concerned.

Quantitative determination of particulate contamination requires precision in obtaining a representative sample of the liquid and in determining the level of contamination. The method of particle counting using the optical microscope is an accepted means of determining the extent of contamination. The accuracy of particle count data can be affected by the techniques used.

This International Standard details procedures for the separation of particles in liquid samples by vacuum filtration and subsequent analysis of the particles deposited on an analytical membrane filter by microscopic techniques. The techniques involve counting using transmitted or incident light both manually and using image analysis techniques. This International Standard specifies methods to ensure accurate and consistent results.