



International
Standard

ISO 4407

**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*

**Third edition
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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Apparatus	5
4.1 Sample preparation equipment (see Figure 3).	5
4.2 Microscopes.	7
4.2.1 Microscope for automated counting.	7
4.2.2 Microscope for manual particle counting.	7
5 Rinsing and cleaning fluids	7
5.1 General.	7
5.2 Glassware cleaning procedure.	8
5.3 Environmental conditions.	8
5.4 Solvent cleaning.	8
6 Calibration	8
6.1 Microscope calibration for automated counting.	8
6.2 Validation of system for automated counting.	9
6.3 Microscope calibration for manual counting.	9
6.4 Determination of the EFA (effective filtration area).	9
7 Membrane filter preparation	10
7.1 Blank analysis.	10
7.2 Sample preparation.	11
7.3 Capturing the particulate contamination on the filter membrane.	11
7.4 Mounting of membrane filters for observation under transmitted light.	12
8 Particle sizing and counting procedure	13
8.1 Automated counting.	13
8.1.1 Evaluation of suitability for counting.	13
8.1.2 Image capturing.	13
8.1.3 Sequentiation.	14
8.1.4 Particle counting.	14
8.1.5 Validation of results.	14
8.2 Procedure for manual counting with statistical counting and extrapolation.	15
8.2.1 Evaluation of suitability for manual counting.	15
8.2.2 Particle sizing and manual, statistical counting procedure.	15
8.3 Calculation of total count.	16
9 Verification of data	17
10 Identification statement (reference to this document)	17
Annex A (informative) Report for automated counting	18
Annex B (informative) Report for manual counting	20
Annex C (informative) Binary pictures with different threshold settings	21
Annex D (informative) Membrane pictures where counting is impossible	22
Annex E (informative) Reference slides for system validation and adjustment	24
Bibliography	25

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.

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