
**Hydraulic fluid power — Monitoring
the level of particulate contamination
in the fluid —**

**Part 4:
Use of the light extinction technique**

*Transmissions hydrauliques — Surveillance du niveau de pollution
particulaire des fluides —*

Partie 4: Technique d'absorption de lumière

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 21018-4:2016), which has been technically revised. The main changes compared to the previous edition are as follows:

- simplification of calibration procedure in [Clause 7](#);
- moving the equipment for the calibration and validation procedure from [Clause 5](#) to [Clause 7](#) after the Operating Procedures.

A list of all parts in the ISO 21018 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

In hydraulic fluid power systems, power is transmitted through a liquid under pressure within a closed circuit. The liquid is both a lubricant and a power-transmitting medium. The presence of solid contaminant particles in the liquid interferes with the ability of the hydraulic liquid to lubricate and causes wear. The extent of contamination in the liquid has a direct bearing on the performance and reliability of the system and should be controlled to an appropriate level.

Quantitative determination of particulate contamination requires precision both in obtaining a representative sample of the liquid and the measurement of the contamination. The awareness of the benefits of cleanliness monitoring has led to the development of instruments that operate online (i.e. directly connected to a system) in an attempt to reduce measurement errors that are inherent with bottle samples. Particle contamination monitors (PCM) have been developed for this purpose and are extensively used.

Instruments using this technique have become widely used in the industry and an international standard is required in order to standardize operating procedures. This document defines procedures for the use of light extinction instruments in evaluating the cleanliness level of a hydraulic liquid. It also includes procedures for calibrating and verifying that the instruments are operating correctly to ensure consistent results.

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