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**Performance test method for diesel  
engine soot-removal devices in  
lubricating oils — Initial filtration  
efficiency**

*Essai de performance de filtration pour moteurs diesel — Séparation  
des impuretés dans l'huile pour lubrification*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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.

ISO/TS 23556 was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*, Subcommittee SC 7, *Tests for lubricating oil filters*.

# Performance test method for diesel engine soot-removal devices in lubricating oils — Initial filtration efficiency

**IMPORTANT** — The test method specified in this Technical Specification has not been proven by a round robin exercise.

## 1 Scope

This Technical Specification specifies a multipass soot-filtration test method using batch thermal gravimetric analysis (TGA), continuous online Fourier Transformation Infrared (FTIR), or other approved soot-measuring techniques for evaluating the initial filtration efficiency of single-stage, multiple-stage, centrifugal and other soot-removal devices (SRD) for internal combustion engines submitted to a constant flow rate of test liquid. The test procedure determines time-weighted average initial soot-removal efficiency for soot-removal devices. This test method is intended for application to SRDs having a rated flow between 0,5 l/min and 75 l/min.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1219-1, *Fluid power systems and components — Graphic symbols and circuit diagrams — Part 1: Graphic symbols for conventional use and data-processing applications*

ISO 3968, *Hydraulic fluid power — Filters — Evaluation of differential pressure versus flow characteristics*

ISO 4405, *Hydraulic fluid power — Fluid contamination — Determination of particulate contamination by the gravimetric method*

ISO 11841-1, *Road vehicles and internal combustion engines — Filter vocabulary — Part 1: Definitions of filters and filter components*

ISO 11841-2, *Road vehicles and internal combustion engines — Filter vocabulary — Part 2: Definitions of characteristics of filters and their components*

DHD-1:2001, *Global Performance Specification of Diesel Engine Oil*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11841-1, ISO 11841-2 and the following apply.

### 3.1

#### **soot-removal device**

#### **SRD**

device intended to remove soot from lubricating oil

**NOTE** SRDs include single-stage, multiple-stage, centrifugal and other devices.