

This is a preview of "ISO 19438:2003". [Click here to purchase the full version from the ANSI store.](#)

First edition
2003-11-01

Corrected version
2004-06-15

Diesel fuel and petrol filters for internal combustion engines — Filtration efficiency using particle counting and contaminant retention capacity

Filtres à carburant, essence ou diesel, pour moteurs à combustion interne — Efficacité de filtration par comptage des particules et capacité de rétention



Reference number
ISO 19438:2003(E)

© ISO 2003

This is a preview of "ISO 19438:2003". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2003

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 19438:2003". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword.....	iv
Introduction	v
1 Scope.....	1
2 Normative references	1
3 Terms and definitions.....	2
4 Symbols	2
5 Test equipment and materials	2
5.1 Test equipment.....	2
5.2 Test materials	5
6 Accuracy of measuring instruments and test conditions	5
7 Test rig validation	6
7.1 General	6
7.2 Validation of the on-line dilution and particle counting system	6
7.3 Validation of filter test circuit	6
7.4 Validation of contaminant injection circuit	7
8 Preliminary preparation.....	7
8.1 Test filter assembly.....	7
8.2 Contaminant injection circuit	7
8.3 Filter test circuit	9
9 Test procedure	9
9.1 Initial procedure	9
9.2 Filter test	11
10 Calculation and reporting of test results.....	12
10.1 Test report	12
10.2 Calculation.....	12
Annex A (normative) Specification of test fluid for filter test	15
Annex B (informative) Typical filter test report, presentation of test results.....	17
Annex C (informative) Example filter efficiency calculations	22
Annex D (informative) Summary of the International interlaboratory trial ("round robin") to validate ISO 19438 protocol	26
Bibliography	38

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.

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 19438 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 7, *Injection equipment and filters for use on road vehicles*.

It is intended that ISO 19438 replace ISO/TS 13353:2002 when that document is reviewed after three years.

This corrected version of ISO 19438:2003 incorporates the following corrections:

- in the test report in Annex B, under the headings “Presentation of test results... Initial filtration efficiency — Elapsed time: 6,00 min...” and “... Initial filtration efficiency — Elapsed time: 15,00 min...”, the particle size “ $\geq 3 \mu\text{m(c)}$ ” has been corrected to “ $\geq 13 \mu\text{m(c)}$ ”;
- in Figure D.4, the curve labelled at left of the legend as “LATOUR T2” has been corrected to read “LATOUR T1”;
- an explanation that the barred values in the table are discarded outliers has been inserted in the title of Table D.2;
- ISO/TS 13353 has been added to the bibliography;
- typographical errors have been corrected.

This is a preview of "ISO 19438:2003". [Click here to purchase the full version from the ANSI store.](#)

Introduction

An interlaboratory trial was conducted using ISO 19438 by six laboratories in 2002. Typical filters were evaluated and results for filtration efficiencies and retention capacities analysed to deduce repeatability, reproducibility and coefficient of variation of the method. Initial filtration efficiency results were found to closely correlate to those obtained through the method specified in ISO/TS 13353, thus making the method given in that Technical Specification redundant.

A summary of the results is given in Annex D.