First edition 2003-11-15

Space systems — Surface cleanliness of fluid systems —

Part 3:

Analytical procedures for the determination of nonvolatile residues and particulate contamination

Systèmes spatiaux — Propreté des surfaces en contact avec des fluides —

Partie 3: Modes opératoires analytiques pour la détermination des residus non volatils et de la contamination particulaire



Reference number ISO 14952-3:2003(E)

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

Contents ForewordIntroduction		Page
		iv
		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Acceptance inspection	2
4.1	General	
4.2	Visual inspection	
4.3	Acidity and alkalinity test	
4.4	Acceptance inspection of items cleaned in a controlled environment	2
4.5	Acceptance inspection of items cleaned in the field	6
4.6	Acceptance inspection of packaging materials	7
4.7	Acceptance inspection of items by functional test	9
5	Sampling and analytical practices	
5.1	Cleanliness level test methods	9
5.2	Microscopic particle population	12
5.3	Gravimetric NVR analysis method	12
5.4	Aqueous ultrasonic sampling and total carbon (TC) NVR analysis	13
Anne	ex A (informative) Sensitivity factor calculation	15

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 14952-3 was prepared by Technical Committee ISO/TC 20, Aircraft and space vehicles, Subcommittee SC 14, Space systems and operations.

ISO 14952 consists of the following parts, under the general title *Space systems* — *Surface cleanliness of fluid systems*:

- Part 1: Vocabulary
- Part 2: Cleanliness levels
- Part 3: Analytical procedures for the determination of nonvolatile residues and particulate contamination
- Part 4: Rough-cleaning processes
- Part 5: Drying processes
- Part 6: Precision-cleaning processes

Introduction

This part of ISO 14952 defines sampling and analytical methods to verify cleanliness levels for parts and components used in space fluid systems. It can be used to determine the cleanliness level of precision-cleaned parts and components used in ground support equipment, launch vehicles and spacecraft.