
**Cryogenic vessels — Cleanliness for
cryogenic service**

Réipients cryogéniques — Propreté en service cryogénique



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Contents

| | Page |
|---|------|
| Foreword | iv |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms and definitions | 1 |
| 4 Requirements | 1 |
| 4.1 General requirements | 1 |
| 4.2 Additional requirements for oxygen and oxidizing fluids | 2 |
| 5 Cleaning procedure | 2 |
| 6 Cleanliness evaluation | 2 |
| 7 Post-cleaning protection | 2 |
| 8 Identification | 3 |
| Annex A (informative) Inspection methods | 4 |
| Bibliography | 7 |

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 220, *Cryogenic vessels*.

This second edition cancels and replaces the first edition (ISO 23208:2005), which has been technically revised. The main changes are in [4.1](#).

Cryogenic vessels — Cleanliness for cryogenic service

1 Scope

This document specifies the minimum requirements for the cleanliness of all surfaces of cryogenic vessels and associated accessories that are in contact with the cryogenic fluid at any expected operating conditions.

This document defines the acceptable level of surface and particle contamination to minimize the risk of malfunction of equipment and ensure safety against ignition when in contact with oxygen or oxidizing fluids (see ISO 10156).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 21010, *Cryogenic vessels — Gas/materials compatibility*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

cryogenic fluid

gas which is partially liquid because of its low temperature

Note 1 to entry: It includes totally evaporated liquids and supercritical fluids.

Note 2 to entry: In the context of this document, refrigerated but non-toxic gases and mixtures of them are referred to as cryogenic fluids.

Note 3 to entry: See also ISO 21029-1, ISO 20421-1 and/or ISO 21009-1.

3.2

oxidizing fluid

cryogenic fluid (3.1) with oxidizing properties

Note 1 to entry: This is in accordance with ISO 10156.

4 Requirements

4.1 General requirements

Foreign matter such as chips, oxide scale and weld spatter are not acceptable.