INTERNATIONAL STANDARD

ISO 14951-3

First edition
1999-10-01

Space systems — Fluid characteristics —

Part 3: Nitrogen

Systèmes spatiaux — Caractéristiques des fluides —

Partie 3: Azote

Reference number
ISO 14951-3:1999(E)

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 3.

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.

International Standard ISO 14951-3 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

ISO 14951 consists of the following parts, under the general title *Space systems — Fluid characteristics*:

— *Part 1: Oxygen*

— *Part 2: Hydrogen propellant*

— *Part 3: Nitrogen*

— *Part 4: Helium*

— *Part 5: Nitrogen tetroxide propellant*

— *Part 6: Monomethylhydrazine propellant*

— *Part 7: Hydrazine propellant*

— *Part 8: Kerosene propellant*

— *Part 9: Argon*

— *Part 10: Water*

— *Part 11: Ammonia*

— *Part 12: Carbon dioxide*

— *Part 13: Breathing air*

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

Space systems — Fluid characteristics —

Part 3:
Nitrogen

1 Scope

This part of ISO 14951 specifies limits for the composition of nitrogen and test methods for verification of nitrogen composition. This part of ISO 14951 is applicable to nitrogen of the following types and grades, intended for purging and pressurization of propellant systems of space systems and for preparing oxygen-nitrogen mixtures for breathing purposes on board space vehicles:

- type I: gaseous
  - grade A: 99,5 % pure, purging/pressurizing;
  - grade B: 99,99 % pure, crew breathing;
  - grade C: 99,995 % pure;
  - grade F: 99,99 % pure;
- type II: liquid
  - grade A: 99,5 % pure, purging/pressurizing;
  - grade B: 99,99 % pure, crew breathing;
  - grade C: 99,995 % pure;
  - grade F: 99,99 % pure.

This part of ISO 14951 is applicable to nitrogen used in both flight hardware and ground facilities, systems, and equipment. It is applicable to influents only to the extent specified herein.

2 Terms and definitions

For the purposes of this part of ISO 14951, the following terms and definitions apply.

2.1
direct method
method of measuring fluid purity by direct means (e.g. measurement device, analyzer, etc.)

2.2
indirect method
method of measuring the aggregate impurities, as a volume percent or percent by weight, and subtracting it from 100

2.3
particulate
undissolved solids retained on a filter paper with a 10 µm absolute rating

3 Composition

The composition of nitrogen delivered to the flight vehicle interface shall be in accordance with the limits given in Table 1 when tested in accordance with the applicable test methods.

4 Test methods

4.1 Sampling

Nitrogen should be selected in accordance with a sampling plan that will produce results with sensitivities and accuracies equivalent to or better than those required to meet the programme or project requirements.

4.2 Composition tests

The composition of the nitrogen shall be tested by such methods, apparatus, or analyzers as may be required to produce results with the sensitivities and accuracies necessary to meet programme or project requirements.