
**Space systems — Fluid characteristics —
Part 13:
Breathing air**

Systèmes spatiaux — Caractéristiques des fluides —

Partie 13: Air respirable

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ISO 14951-13:1999

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Foreword

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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 14951-13 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

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Space systems — Fluid characteristics —

Part 13: Breathing air

1 Scope

This part of ISO 14951 specifies limits for the composition of breathing air intended for purging and pressurization of space systems, and test methods for verification of its composition.

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

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2 Composition

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The composition of breathing air 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.

3 Test methods

3.1 Sampling

The breathing air 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.

3.2 Composition tests

The composition of the breathing air 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.

Table 1 — Composition limits

Composition		Limits	
		Compressed source	Liquid source
Oxygen	volume fraction, %	19,5 to 23,8	20 to 23,8
Nitrogen	volume fraction, %	75,2 to 79,5	75,2 to 80
Rare gases (argon, krypton, hydrogen, xenon, helium, neon)	volume fraction, %, max.	1	1
Carbon monoxide	µl/l, max.	10	5
Carbon dioxide	µl/l, max.	500	50
Moisture	µl/l, max.	400	400
Odour		None	None
Total hydrocarbons, as methane equivalent	µl/l, max.	25	50
Acetylene	µl/l, max.	N/A	0,5
Halogenated hydrocarbons	µl/l, max.	2,0	2,0
Chlorinated hydrocarbons	µl/l, max.	0,2	0,2
Nitrous oxide	µl/l, max.	2,0	2,0
Aromatic hydrocarbons, as benzene equivalent	µl/l, max.	0,5	0,5

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