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**Space systems — Fluid characteristics —
Part 10:
Water**

*Systèmes spatiaux — Caractéristiques des fluides —
Partie 10: Eau*



Reference number
ISO 14951-10:1999(E)

Foreword

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International Standard ISO 14951-10 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 10: Water

1 Scope

This part of ISO 14951 specifies limits for the composition of water and test methods for verification of its composition. This part of ISO 14951 is applicable to water of the following types, intended for cooling and servicing of space systems:

- type HP: high purity;
- type P: potable (drinking).

This part of ISO 14951 is applicable to only potable water and high purity demineralized water used in both flight hardware and ground servicing, systems, and equipment. It is not applicable to other types of water that may be provided to a space system. This part of ISO 14951 is applicable to influents only to the extent specified herein.

2 Composition

The composition of water 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 water 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 water 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

Characteristic		Limits	
		Type HP	Type P
Conductivity at 25 °C	$\Omega^{-1}\text{cm}^{-1}$, max.	$2,0 \times 10^{-5}$	$3,3 \times 10^{-6}$
pH at 25 °C		5,0 to 8,0	5,0 to 8,0
Total solids	mg/l, max.	10	500
Total organic carbon	mg/l, max.	—	1
Chlorides	$\mu\text{g/g}$, max.	1,0	—
Taste		—	None
Odour		—	None
Turbidity		—	None
Colour		—	None
Surface tension at 20 °C	dyn/cm	$72,72 \pm 1,0$	—
Ionic species, mg/l, max.	Cadmium	—	0,005
	Chromium (hexavalent)	—	0,1
	Copper	—	1,0
	Iron	—	0,3
	Lead	—	0,015
	Manganese	—	0,05
	Mercury	—	0,002
	Nickel	—	0,1
	Potassium	—	10
	Selenium	—	0,05
	Silver	—	0,1
Zinc	—	5,0	
Sterility		—	Free of viable micro-organisms
Dissolved gas		—	No free gas when subjected to 1 atm at 37 °C
Iodine	mg/l max.	—	10