

Airborne Particles - Standard ISO 14644-1

Sampler ID: 132695

Test Start: 01.01.2023

Report Date: 24.05.2026

Test End: 01.06.2023

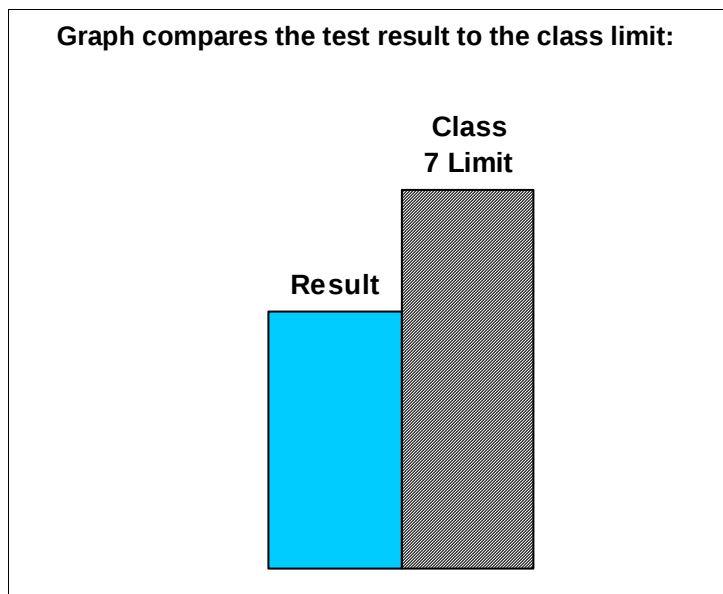
Exposure: 151 Days

SCOPE:

This report corresponds to ISO 14644-1 which is a widely accepted standard for qualifying indoor air cleanliness in terms of the concentration of airborne particles per cubic meter.

TEST RESULT:

67.97% of the ISO 14644-1 Class 7 limit



Statistical Evaluation and Comparison with ISO 14644-1 Limits

Particle Size	Concentration (m3):	CLASS 7 LIMIT	CLASS 8 LIMIT	CLASS 9 LIMIT
0.5 µm	239'247	352,000	3,520,000	35,200,000
1 µm	56'549	83,200	832,000	8,320,000
5 µm	1'991	2,930	29,300	293,000

ISO 14644-1 Class 9: General indoor rooms.

ISO 14644-1 Class 8: Data centers, mission critical facilities, technology spaces and electronic equipment.

ISO 14644-1 Class 7: Biopharma products, sterile pharmaceuticals, electronics components, medical devices and implants; and the maintenance of sensitive aviation and avionics systems.

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SAMPLER DATA:

Sampler ID: 132695
Test Start (dmy): 01.01.2023
Test End (dmy): 01.06.2023
Test Length (days): 151

SCOPE:

The ISO 8502-9 standard primarily focuses on assessing the cleanliness levels of water-soluble salts on surfaces, including chlorides (Cl^-), sulfates (SO_4^{2-}), and nitrates (NO_3^-). The following limit for residual chlorides, relevant to corrosion chemistry, has been established by international organizations and insurers:

- 10 $\mu\text{g}/\text{cm}^2$ for buildings and general installations.
- 5 $\mu\text{g}/\text{cm}^2$ for electronic devices and installations.

TEST RESULTS:

Total Chloride: 0.1401 $\mu\text{g}/\text{cm}^2$

The test result is lower than the limit of 5 $\mu\text{g}/\text{cm}^2$ for electronic devices and installations.

INFORMATION:

Sources of corrosive contaminants include dust, smoke, chemicals and acids. Elevated levels of chlorides are very serious for technical installations since they cause severe corrosion of system components, especially when air humidity is higher than 40 RH. Even small amounts of smoke from burning PVC can release large amounts of highly corrosive hydrochloric acid (HCL). Chlorides may also be contained in concrete dust which can be released by improper maintenance procedures and fire extinguishing gas dumps, particularly if there are large amounts of residual particulates on room and plenum surfaces. NASA engineers identified chlorides for their extreme corrosion effect in the late 70's and they established a chloride threshold limit of 5 micrograms per square centimeter ($\mu\text{g}/\text{cm}^2$) as the acceptable limit on surfaces (KSC-STD-0001-D).