Standard ISO 14644-1

Sampler ID: 132442

Report Date: 07.03.2023

Test Start: 01.07.2022

Test End: 28.02.2023

Exposure: 242 days, 0 hours, 0 minutes

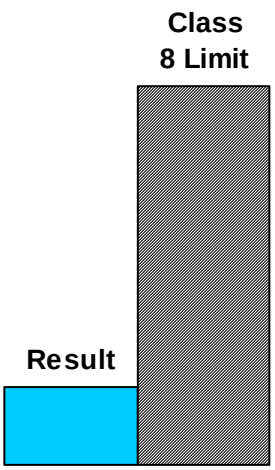
SCOPE:

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:

20.55% of the ISO 14644-1 Class 8 limit

Graph compares the test result to the class limit:



Recommendations:

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.

Chlorides

Sampler ID: 132442

Report Date: 07.03.2023

Test Start: 01.07.2022

Test End: 28.02.2023

Exposure: 242 days, 0 hours, 0 minutes

SCOPE:

This test is an important indicator for metal corrosion potential caused by contamination which contains chlorides (salt). The test results show the chloride deposition rate as well as the total amount of chlorides collected by the sampler during the sampling period.

TEST RESULTS:

Total Soluble Salts: 0.8755 ug/cm2

The test result is lower than the limit of 5 ug/cm2 for electronic devices and installations.

Deposition Rate: 3.79 years until the limit of 5 ug/cm2 is reached.

Caution. The test result is less than 5 years which is the average life span of IT equipment. This means corrosion may cause equipment to malfunction before reaching the end of it's life cycle.

INFORMATION:

The following limits for soluable salts, relevant in terms of corrosion chemistry, have been established by international organizations* and insurers:

- 10 µg/cm² for buildings and general installations.
- 5 µg/cm² for electronic devices and installations.

Since salt corrodes metals, it is recommended that electronic equipment be cleaned or replaced if salt levels exceed 5 µg/cm2. Possible sources include smoke, chemicals and acids. Elevated levels of salt are very serious for a technical installation since they cause severe corrosion of system components, especially when air humidity is higher than 50 RH. Even small amounts of smoke from burning PVC can cause large amounts of chlorides to contaminate equipment components. Salt may also be contained in concrete dust. This measurement is particularly important in assessing insurance claims resulting from damages caused by smoke or other particle events.

Because dissolved salts and other inorganic chemicals conduct electrical current, conductivity increases as salinity increases. Organic compounds like oil do not conduct electrical current very well and therefore have a low conductivity when in water.

* Source: “Comparative investigations of corrosive fire gas condensates” EMPA - Swiss Federal Laboratories for Materials Testing and Research.

pH Report

Sampler ID: 132442

Report Date: 07.03.2023

Test Start: 01.07.2022

Test End: 28.02.2023

Exposure: 242 days, 0 hours, 0 minutes

SCOPE:

This test is an important indicator for metal corrosion potential caused by contamination which is acidic (low pH) or caustic (high pH).The test result shows the pH of the airborne contaminants collected by the sampler during the sampling period.

TEST RESULTS (blue)

pH of contamination: 8.000 pH

Good. pH is within the 5 to 8.5 range and has little corrosive impact on most metals.

Information

When contaminants have a pH between 5 and 8.5, the pH has little corrosive impact on most metals. However, the corrosion rate increases rapidly when the pH is outside of that range. pH levels of 5 or below can lead to extreme corrosion rates and premature pitting of metallic objects. Studies* have shown that even small amounts of low pH (acidic) contaminants can corrode metals.

Metals typically develop a passivation layer with moderately alkaline (high pH) exposure, which lowers the corrosion rate as compared to acidic (low pH) exposure. While the passivation layer provides a measure of immunity to further corrosion, corrosion rates can be expected to be comparable in the transpassive region (i.e. highly alkaline versus highly acidic).

Possible sources of corrosive contaminants include smoke, chemicals and acids. This measurement is particularly important in assessing insurance claims resulting from damages caused by smoke or other particle events. In chemistry, pH is a scale used to specify how acidic or basic a water-based solution is. Acidic solutions have a lower pH, while basic solutions have a higher pH.

* Source: “Comparative investigations of corrosive fire gas condensates” EMPA - Swiss Federal Laboratories for Materials Testing and Research.

technologycare.com

Visual Air Pollution Indicator
In case of visible contamination on collector send for lab report corresponding to ISO 14644-1
Please Do Not Touch

Swiss Made - US Pat. D963489

132442

Start Date: POS: End Date: