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Laboratory Report

Multilevel BOOKMARKS are included to facilitate navigation within this document. If the bookmarks are not visible (left side) click the "Bookmarks" tab or F6 key (Adobe Acrobat).

SAMPLER DATA:

Sampler ID: 130384
Test Start (dmy): 30.12.2019
Test End (dmy): 16.01.2020
Test Length (days): 17



Technology Care LLC based in Zurich, Switzerland, is a leading provider of environmental audits and precision cleaning in data centers. For over 25 years, many of the world's largest corporations have relied on our products and services to ensure that their critical environments consistently meet required standards. Our laboratory located in Zurich, Switzerland uses the latest, most innovative technologies to provide analysis of the highest quality. Many of our technologies have been developed in-house and as a result we have been awarded various patents and trademarks. Technology Care LLC is a member of the Swiss Contamination Control Society: SRRT-SwissCCS

Contents

Sampler Information	1
Chlorides	2
pH	3

Chloride Report

SAMPLER DATA:

Kit ID: 130384

SCOPE:

This test is an important indicator for metal corrosion potential caused by contamination which contains chlorides (salt). The test results of the two test samples are shown below.

TEST RESULTS:

Test ID:

 Total Chloride: 0.2570 ug/cm²

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

INFORMATION:

The following chloride limits, 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 chloride (salt) corrodes metals, it is recommended that electronic equipment be cleaned or replaced if chloride levels exceed 5 µg/cm². Possible sources include smoke, chemicals and acids. Elevated levels of chlorides 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. Chlorides 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.

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

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pH Report

SAMPLER DATA:

Kit ID: 130384

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 results of the two test samples are shown below.

TEST RESULTS:

Test ID:



pH: 6.800

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.