Neutral Salt spray test according to ASTM B 117/ISO 9227/SS DIN 50021

The resistance against salt-water spray is determined by a neutral salt spray test according to ASTM B 117/ISO 9227/SS DIN 50021. In this test the test samples are exposed to a spray of a 5% salt solution at a temperature of 35°C. The test samples are checked for blistering, detachment and any other defects. The neutral salt spray test is mostly for coatings on steel and galvanized steel. Normal duration of this test is 500 hours; this test is extended to 10,000 hours.

Compared to real life - With proper maintenance it can be said that for every 1,000 hours of salt spray test, a coil will have extra protection against corrosion of one year, in case maintenance procedures are met.

Acid Salt spray test according to ASTM G-85/ISO 9227/SWAAT

The resistance against acid rain in combination with salt spray is determined by means of an acid salt spray test according to ASTM G-85/ annex three. In this test coil samples are exposed to a spray of a 5% salt solution with a pH value of 5, at a temperature of 35°C. The pH is set with acetic acid. The acid salt spray test is mostly for coatings on aluminum. Mini coils were coated and pressurized, a valve is attached. The coils are checked every one hundred hours for pressure loss. AA coating has reached 100 days with no leaks. A regular uncoated coil normally leaks after approximately 40 to 50 days. Normal duration 1,000 hours, the AA test for MC Siloxane and Pan coating is extended to 3,000 hours.

Compared to real life - With proper maintenance it can be said that every 1000 hours of acetic salt spray test a coil will protect against corrosion one extra year in industrial combustion environment. After three years a touch up could be required.
• Kesternich test according to DIN 50018 – SFW 0,2 S
The Kesternich test is executed according to DIN 50018-KFW 2 S. This gives an accelerated picture of the behavior of the tested system in an industrial atmosphere, especially oil processing exhaust gases that generally produce sulphuric acid gases. Here the test samples are exposed to an atmosphere of 100% R.H. and SO₂ - gas at an increased temperature (40°C) for 8 hours. As additional test we have designed with an independent lab a test that reflects the atmosphere in waste water treatment plants, with the exposed H₂S concentrations. The AA coating and header coating were not affected and prevented coil leaking. Compared to real life. With proper maintenance it can be said that every 10 cycles of Kesternich extend the life-time of a coating system by 1 year in the described exposure, provided Maintenance Requirements are executed. After three years a touch up could be required.

• Cycle Exchange test according to ISO 20340
One Cycle consists out of:
- 72 hours Sun Test according to ISO 11341
- 72 hours Salty Mist exposure according to ISO 7253
- 24 hours exposure at 20 ± 2 °C.

Because of insufficient correlation between the results of salt spray tests and results in the field, exchange tests are more and more reliable and used. Especially exposure to UV radiation reflects the (sub)tropics, conditions that inhibit the corrosion speed.

Compared to real life - The test is carried out for half a year and reflects 3 years of exposure to the sun and salty conditions like most of the tropical and sunny exposure conditions.

• Abrasion Resistance test according to ASTM D 4060
The TABER ABRASER test sets standards for wear resistance. Coated surfaces are artificially exposed to wearing by wheels, CS 17 wheels, with sandpaper. After 1,000 rotations, mass loss of the coating is determined.

Compared to real life - The devastating influence of sandstorms act like sandpaper, any coating system should have good results in the Taber Abrasion test.

• Flexibility test according to NEN-ISO 1519
Metals expand and contract by fluctuations in temperature. HVAC coating systems have to be flexible enough to withstand heat exchange temperature fluctuations. Flexibility is measured by Erichsen tests (DIN 53156).

Compared to real life - Metal expand and contract due to temperature fluctuations. We have conducted this test according to the standard, but on fin material for AA Coil Protection. Generally corrosive exposures of coating systems must meet the cylindrical bow test.

• NSF coating approval
Millions of people take the safety of their food, water and consumer products for granted on a daily basis. Why? Because of three letters: NSF. NSF certification is your key to making sure that the products you use meet strict standards for public health protection. Choosing a product certified by NSF lets you know the company complies with strict standards and procedures imposed by NSF. From extensive product testing and material analyses to unannounced plant inspections, every aspect of a product’s development is thoroughly evaluated before it can earn our certification. Most importantly, NSF certification is not a one-time event, it involves regular on-site inspections of manufacturing facilities and regular re-testing of products to ensure that they continue to meet the same high standards required to maintain certification over time. If for any reason a product fails to meet one or more certification criteria, NSF will take enforcement actions to protect you, including product recall, public notification or de-certification. Products that earn NSF certification are said to be “NSF certified” or “NSF listed” and display the applicable NSF certification mark to show that they have been tested by one of today’s most respected independent product testing organizations. Our cleaning Agent DET, the AA coil coating and the MC Siloxane are listed and carry the NSF logo.

• FDA approval
AA coil coating has been granted an FDA approval of the intended use with possible food contact. The regulation properly known as 21 CFR 175.300, “Resinous and Polymeric Coatings” is the umbrella regulation covering most coating formulations that have any food contact, it must be pointed out that the FDA does not have approval authority related to coatings, but dictate maximum ratings of extraction of potential fumes and potential poisonous ablation, all of which described in the 21 CFR 175.300 “Resinous and Polymeric Coatings” standard. Coating manufacturers must use materials that conform to the FDA regulations (such as 175.300) and follow good manufacturing practice in the formulation and manufacture of the coatings. The extraction tests covered in 175.300 cover the minimal requirements that must be met to prove confirmation to the FDA Regulations. AA coil coating is audited and found compliant to these FDA regulations. The coil coating can be safely applied to heat exchange coils that may be directly or indirectly in contact with food, as described in 21 CFR 175.300 “Resinous and Polymeric Coatings”.

• UL 723
UL 723 / ASTM E 84 is the standard test method for surface burning characteristics of building materials. The flame spread index and smoke developed index values obtained by the UL 723 / ASTM E 84 test are used by code officials and regulatory agencies in the acceptance of interior finish materials for various applications. The AA Pan coating for drain pans and AA coil coating comply to these tests. Many additional tests have been conducted by AA to prove the highest grade of compatibility to HVAC & R heat exchangers, to carry the highest corrosion resistance, efficiency and compliance to safety and environmental friendly application and use.

Note: PURE-Coat™ is a specialized private label product of AA coatings.
* Information gathered from product Safety Data Sheets (SDS).

For more information or to request a complimentary consultation
Please call the Indoor Air Quality Experts at
1-800-422-7873
or visit PureAirControls.com