

Update sheet No. 2022/003 to the Technical Specifications Version 4.2. – July 2021

Applicable from the of 1st of January 2023

Subject

NEUTRAL SALT SPRAY TEST

Proposal/Request

Questions were raised regarding the influence of the position, depth and width of the scratch to the results of the neutral salt spray test. A survey to the several testing institutes learned that specifications are needed how the neutral salt spray needs to be carried out.

Qualisteelcoat resolution

No. 41/22.11.2021: Specifications how the neutral salt spray test needs to be carried out:

- Thickness of the test panels
 - For panels with chemical pre-treatment: min. 0.8 mm thick
 - For panels with mechanical pre-treatment or hot dip galvanized panels: min. 3 mm thick
- Size of the panel: minimum 140 x 70 mm
- Method of making the scribe: manually with the Sikkens scratching tool.
- Width of the scribe: 1 mm
- Depth of the scribe: through the organic layer till the metallic layer (zinc of steel)
- Length and place of the scribe: 10 cm in the middle of the panel
- Position of the scribe: vertical
- Timing of the assessment: directly after test (within one hour)
- Evaluation: with sharp knife at an angle of 15-30°

Approved

05.10.2022 by Executive Committee

Amendments to the specifications

Amendments in §6.18

6.18 Neutral Salt spray test (NSS)

The objective of this test is to determine the corrosion resistance of the coating system. For the corrosive categories, the test results will give an indication of the durability of the coating system.

All test panels must be scratched according to EN ISO 12944-6 in the middle of the panel with a vertical scratch of 1 mm, 100 mm long and made with the Sikkens scratch tool.

Place the coated test piece in a spray cabinet complying with EN ISO 9227 – continuous salt spray with the scratch in a vertical position. After testing, remove the sample carefully from the test cabinet, wash the test panels in de-ionized water at a temperature of less than 35°C, and dry immediately. A cross cut test will be performed on each panel.

Assessment of corrosion and delamination at the scribe is carried out according to DIN EN ISO 4628-8 (immediate after the washing of the test panels)-

For this purpose, it is tried to lift the coating with a sharp tool from the carved line with an angle of 15° to 30°.

c = average corrosion of the substrate from the scribe according to ISO 4628-8 in mm

d = average delamination according to ISO 4628-8 in mm

Number of samples: 3 panels type B for each corrosivity-category

Requirements:

category	exposure time (based on ISO 12944-6)
C1 high	not applicable
C2 high	240 h (10 days)
C3 high	480 h (20 days)
C4 high	720 h (30 days)
C5 high	1440 h (60 days) alternatively 1680 hours cyclic ageing test

assessment	requirement
blistering (ISO 4628-2)	0
rusting (ISO 4628-3)	Ri0
cracking (ISO 4628-4)	0 (S0)
flaking (ISO 4628-5)	0 (S0)
delamination (ISO 4628-8)	$d \leq 3$ mm on steel; $d \leq 8$ mm on zinc substrates
corrosion (ISO 4628-8)	$c \leq 1$ mm (For C5 ≤ 2 mm)
adhesion (ISO 2409)	0 or 1

rating	number of samples passed / failed	consequence for inspection / application
A	3 / 0	passed
B	2 / 1	passed
C	1 / 2	failed
D	0 / 3	failed