

## TEST REPORT No. 438230

Customer

**KEMICHAL S.r.l.**

Via dell'Artigianato, 2 - 35010 TREBASELEGHE (PD) - Italy

Item#

**steel panels with cycle**

**"KEMIMETAL OCV855X/OCV855BX"**

Activity



**laboratory tests to evaluate the performance of coating systems for corrosion protection of steel structures in accordance with standard UNI EN ISO 12944-6:2018**

Results

**suitable for class  
C4-H/C5-M**

(#) according to that stated by the customer.

Bellaria-Igea Marina - Italy, 27 February 2026

Chief Executive Officer

Order:  
108453

Item origin:  
sampled and supplied by the customer

Identification of item received:  
2026/0062 dated 13 January 2026

Activity date:  
from 16 January 2026 to 20 February 2026

Activity site:  
Istituto Giordano S.p.A. - Blocco 4 - Via San Mauro, 8 - 47814 Bellaria-Igea Marina (RN) - Italy

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The results relate only to the item examined, as received, and are valid only in the conditions in which the activity was carried out.

This document is the English translation of the test report No. 438230 dated 27 February 2026 issued in Italian; in case of dispute the only valid version is the Italian one.

Date of translation: 10 March 2026.

The original of this document consists of an electronic document digitally signed pursuant to the applicable Italian Legislation.

Chief Test Technician:

Per. Ind. Armando Ciccione

Head of Chemical Laboratory:

Dott. Alessandro Lorenzi

Compiler: Francesca Manduchi

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### Description of item<sup>#</sup>

The item under examination consists of 9 steel panels, coated with two coats of 180 g/m<sup>2</sup> wet (approximately 160 µm wet) per coat, nominal dimensions 150 mm × 150 mm.

### Normative references

Standard	Title
UNI EN ISO 12944-6:2018	Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 6: Laboratory performance test methods
UNI EN ISO 9227:2024	Corrosion tests in artificial atmospheres - Salt spray tests
UNI EN ISO 6270-1:2018	Paints and varnishes - Determination of resistance to humidity - Part 1: Continuous condensation
UNI EN ISO 4628-2:2016	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering
UNI EN ISO 4628-3:2025	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting
UNI EN ISO 4628-4:2016	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 4: Assessment of degree of cracking
UNI EN ISO 4628-5:2023	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 5: Assessment of degree of flaking
UNI EN ISO 2409:2020	Paints and varnishes - Cross-cut test
UNI EN ISO 2808:2019	Paints and varnishes - Determination of film thickness

### Apparatus

Description	In-house identification code
CO.FO.ME.GRA. "D200" continuous humidity condensation chamber in which sulfur dioxide is introduced, with a 300 l capacity	CHG091
Erichsen Instruments "Corrotherm 610E" salt spray cabinet for tests of accelerated corrosion	CHG072
set of cards of known thickness scale 5, serial number T99022255-5C, tolerance 1 % (12,5 µm, 25 µm, 50 µm, 125 µm, 250 µm e 500 µm) including card calibration certificate	CHG166
Hand-held multi-blade cutting Elcometer "F10713222" Cross Hatch Cutter with 6	CHG088
Arroweld "ARW-826" thickness gauge, measuring range 0-1,25 mm	MET041
Delta Ohm thermo-hygrometer datalogger, measurement range: temperature [-35 °C; +100 °C]; relative humidity 5-98 %	LM254

(#) according to that stated by the customer; Istituto Giordano declines all responsibility for the information and data provided by the customer that may influence the results.

## Method

### Adhesion by means of cross-cutting method (Cross-cut test)

The test was performed on unaged panels No. 1, No. 2 and No. 3 and on the remaining panels after exposure to a salt spray chamber and a humidistat chamber, using the internal detail procedure PP073 in the current revision at the date of the test.

The item under examination was conditioned at the temperature of  $(23 \pm 2)$  °C and at  $(50 \pm 5)$  % relative humidity and subjected to the adhesion test by means of the cross-cut test at the temperature of  $(23 \pm 2)$  °C after determining the thickness (paragraph 7.2 of the UNI EN ISO 2409:2020 standard) 5.5.6 - Method 7B.2 of the UNI EN ISO 2808:2019 standard.

The thickness measurements are performed on the diagonals and on the sides at a distance of  $\geq 20$  mm from the edge.

The spacing of the cuts in each direction is a function of the thickness of the coating and the type of substrate, on the basis of which the following sets of blades have been used:

- up to 60  $\mu\text{m}$ : 1 mm spaced blades for hard substrates (eg. metals and plastic);
- up to 60  $\mu\text{m}$ : 2 mm spaced blades for soft substrates (eg. wood and plaster);
- from 61  $\mu\text{m}$  to 120  $\mu\text{m}$ : blades spaced 2 mm apart for both substrates;
- from 121  $\mu\text{m}$  to 250  $\mu\text{m}$ : blades spaced 3 mm apart for both substrates.

### Test data

<b>Blade distance</b>	3 mm
<b>Removal method</b>	brush

### Determination of corrosion resistance in a temperature and humidity chamber

Panels No. 4, No. 5 and No. 6 were subjected to exposure in a continuous humidity condensation chamber under the conditions reported in the following table.

<b>Temperature inside the test cabinet</b>	$(40 \pm 2)$ °C
<b>Type of exposure</b>	continuous
<b>Relative humidity</b>	100 %
<b>Total time exposure</b>	480 h

### Determination of the resistance to corrosion in salt spray

The test is performed using the detailed internal procedure PP023 in its current revision at testing date.

Panels No. 7, No. 8 and No. 9 were subjected to exposure in salt spray cabinet with the conditions set forth in the following table.

<b>Test solution used<sup>#</sup></b>	5 % sodium chloride dissolved in deionised water
<b>ph collected solution</b>	6,6
<b>Average volume of collected solution in 24 h</b>	40 ml
<b>Collected solution density</b>	1,031 g/ml
<b>Temperature inside the test cabinet</b>	$(35 \pm 2)$ °C
<b>Type of exposure</b>	continuous
<b>Total time exposure</b>	720 h

(#) in accordance with paragraph 5.1 of the standard UNI EN ISO 9227:2024.

### Visual assessments at the end of aging

At the end of the exposure period, the item was removed from the salt spray cabinet, washed with deionised water and dried in a stream of air. An evaluation is then performed:

- degree of blistering, in accordance with standard UNI EN ISO 4628-2:2016;
- degree of rusting, in accordance with standard UNI EN ISO 4628-3:2025;
- degree of cracking, in accordance with standard UNI EN ISO 4628-4:2016;
- degree of surface flaking, in accordance with standard UNI EN ISO 4628-5:2023;
- corrosion average width around scribe according to Annex A of the UNI EN ISO 12944-6:2018 standard (only for the salt spray corrosion test).

### Results

Preliminary test		
Panel [No.]	Average film thickness <sup>(a)</sup> [μm]	Degree of adhesion <sup>(b)</sup>
1	184	0
2	170	0
3	165	0

Resistance to humidity							
Panel [No.]	Type of exposure [h]	Degree of blistering <sup>(c)</sup> “n(S <sub>m</sub> )”	Degree of rusting <sup>(d)</sup> “R <sub>i</sub> ”	Degree of cracking <sup>(e)</sup> “n(S <sub>m</sub> )a/b/c”	Degree of surface flaking <sup>(f)</sup> “n(S <sub>m</sub> )a/b”	Average film thickness <sup>(a)</sup> [μm]	Degree of adhesion <sup>(b)</sup>
4	480	0(S0)	0	0(S0)	0(S0)	189	0
5		0(S0)	0	0(S0)	0(S0)	175	0
6		0(S0)	0	0(S0)	0(S0)	167	0

Resistance to corrosion in salt spray								
Panel [No.]	Type of exposure [h]	Degree of blistering <sup>(c)</sup> “n(S <sub>m</sub> )”	Degree of rusting <sup>(d)</sup> “R <sub>i</sub> ”	Degree of cracking <sup>(e)</sup> “n(S <sub>m</sub> )a/b/c”	Degree of surface flaking <sup>(f)</sup> “n(S <sub>m</sub> )a/b”	Average film thickness <sup>(a)</sup> [μm]	Degree of adhesion <sup>(b)</sup>	Corrosion av- erage width around scribe [mm]
7	720	0(S0)	0	0(S0)	0(S0)	179	0	< 0,5 mm
8		0(S0)	0	0(S0)	0(S0)	176	0	< 0,5 mm
9		0(S0)	0	0(S0)	0(S0)	180	0	< 0,5 mm

(a) values based on 10 measurements.

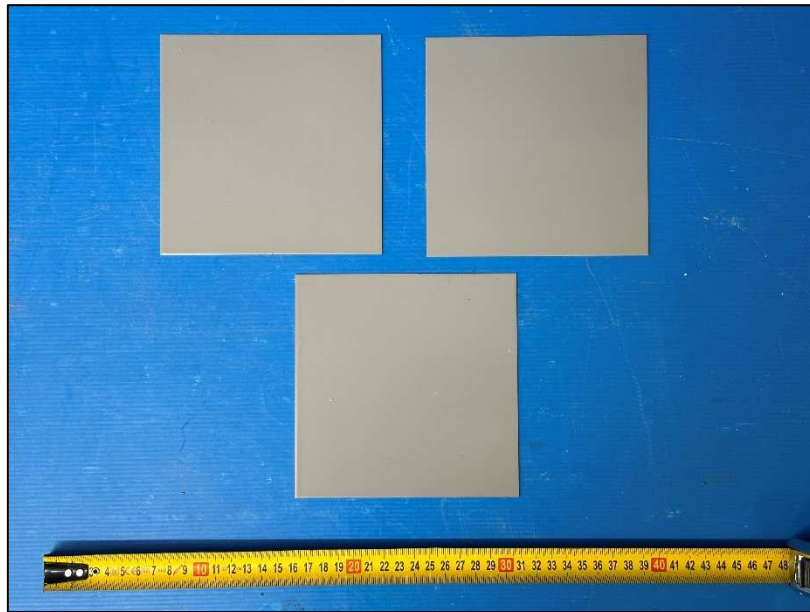
(b) grade 0: no surface removed - “maximum adhesion”;

(c) the degree of blistering is expressed as “n(S<sub>m</sub>)” where “n” represents the quantity of bubbles and ranges from 0 (no detectable defects) to 5 (dense pattern of bubbles) while “m” represents the size of the bubbles and ranges from 0 (not visible under × 10 magnification) to 5 (maximum size).

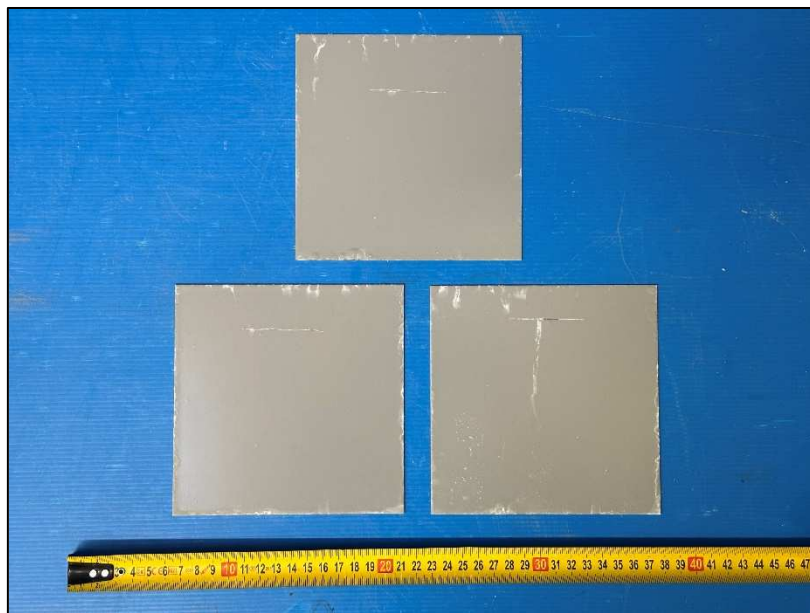
(d) the degree of rusting is from “0” (corresponding to 0 % rusty area) to “5” (corresponding to rusty area ranging from 40 % to 50 %).

(e) the degree of cracking is expressed as “n(S<sub>m</sub>)a/b/c” where “n” represents the quantity of cracking and ranges from “0” (no detectable cracks) to “5” (dense pattern of cracks); the grade “m” represents the size of the crack and goes from “0” (not visible under × 10 magnification) to “5” (very large cracks with a width greater than 1 mm); the letters “a”, “b”, “c” indicate the depth of the cracking surface according to paragraph 4 of the UNI EN ISO 4628-4:2016 standard.

(f) the degree of flaking and corrosion around the incisions goes from “1” (minimum degradation) to “5” (severe degradation): grade 1 <5% surface area removed; grade 2: 5 % to 15 % surface area removed; grade 3: 15 % to 35 % surface area removed; grade 4: 35 % to 65 % surface area removed; grade 5: >65 % surface area removed - “minimal adhesion”.



**Photograph of the item after the humidity resistance test**



**Photograph of the item after the salt spray corrosion resistance test**

**Findings**

In accordance with standard UNI EN ISO 12944-6:2018 and on the basis of the performance tests carried out, the item under examination can be classified as **C4-H/C5-M**.