

## Lab Test Report

Testing coated samples according to ISO 12944-6 CG High test regime 1

Israel, Oct 2025

**Company** : Coreteel Technology

**Coreteel Lab Test ID** : EB

**Report Number** : LABEB1025300

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## Summary

Series	The method	Test duration	Pass/ Fail
C: SA2.5- CB300- Ecopoxy- Tamaglas	Reference adhesion	N.A	Pass
	Neutral Salt Spray ISO 9227	1440 hours	Pass
	Condensation test ISO 6270-1	720 hours	Pass
J: SSPC SP14- CB300- Ecopoxy- Tamaglas	Reference adhesion	N.A	Pass
	Neutral Salt Spray ISO 9227	1440 hours	Pass
	Condensation test ISO 6270-1	720 hours	Pass

## Conclusion

**The coated samples, based on the CB300 coating system, met the requirements of ISO 12944-6 C5 High test regime 1 on both substrates (rusted and Sand-blasted).**

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## 1. Introduction

This test analyzes the compliance of steel panels (both with SA 2.5 and corrosion surface) coated with CB310 with ISO12944-6 standard.

### 1.1. Overview of ISO 12944-6 C5 high standard

The ISO-12944 standard is an international guideline for evaluating paint systems that provide corrosion protection for steel structures. ISO-12944-6 specifies the tests required in a laboratory that is certified to this standard.

The tests and use of environmental chambers were conducted at the Coreteel company laboratories with the utmost care, although these laboratories are not officially certified.

This report summarizes a conformity test for a paint system based on CB300, with two additional paint layers produced by the Tambor company, in accordance with the ISO 12944-6 C5 High standard. The application of the paint system was carried out at the Coreteel company laboratory between July 2025 and Sep 2025. The testing followed the ISO-12944-6 C5 High requirements.

### 1.2. General information

The coating system has been applied by Coreteel (see Paint Application Form in Annex 1)

#### **Application data:**

##### **Substrate**

Series C- Steel panels S 235 JR.

Series J- Steel panels S 235 JR.

##### **Surface:**

Series C- Mill scale

Series J- Corrosion - Grade C

##### **Surface preparation:**

Series C- SA2.5 (sand blast)

Series J- SSPC-SP14 (high water pressure)

##### **Coating system build-up and specified dry film thickness:**

CB300 S7-2	:	40 µm
Ecopoxy 80	:	150 µm
Tamaglas PE	:	50 µm
Total nominal dry film thickness	:	240 µm
Test specification	:	ISO 12944-6
Corrosivity category	:	C5
Durability range	:	High
Test regime	:	1

## 2. Procedure

### 2.1. Determination of the dry film thickness using a magnetic induction gauge

Before starting the tests, the total dry film thickness of the coating system has been measured according to ISO 2808. On each panel, 6 measurements have been carried out. The panels have been conditioned for 14 days at  $23 \pm 2$  °C and  $50 \pm 5$  % R.H., the test has been performed under the same conditions. All individual values have been reported. Dry film thickness was measured using Elcometer 456C.

### 2.2. Determination of the resistance against corrosion in artificial atmospheres, Neutral spray

Resistance to Neutral Salt Spray (NSS) has been tested under ISO 9227 on three test panels. The fully cured coating system has been scribed horizontally down to the steel substrate, the scribe line is 2 mm wide and 50 mm long.

#### General Data:

Type of water	: Demineralized water (< 10µS)
Salt	: (NaCl) Corro-Salt Ascott
Test temperature	: $35 \pm 2$ °C
Collected salt solution pH	: 6.5-7.2
The salt concentration of the collected solution	: $50 \pm 5$ g/l
Temperature of environment	: $23 \pm 2$ °C
Exposition angle	: Approx. 20° from the vertical
Test Duration	: 1440 hours

Immediately after exposure, the panels were evaluated for visual surface defects according to ISO 4628-2,3,4 and 5.

In addition, the corrosion at the scribe by ISO 12944-6 has been determined within 8 hours after the end of the exposure. The corrosion at the scribe is calculated from the equation:  $M = \frac{C-W}{2}$  where:

- M = corrosion creep (mm)
- C = average of the nine measurements (mm)
- W the original Width of the scribe (mm)

After the assessments photos have been taken (See Annex).

## 2.3. Determination of resistance to Humidity

Resistance to water condensation has been tested under ISO 6270-1 on three test panels.

### General Data:

Temperature of the air space	: 38 ± 2 °C
Temperature of environment	: 23 ± 2 °C
Exposition angle	: Approx. 60° to the horizontal
Test Duration	: 720 hours

Immediately after the test, the panels were examined for defects according to ISO 4628. The adhesion has been determined after 7 days recovery period.

After the assessments photos have been taken (See Annex).

## 3. Requirements

Only one of the three panels shall be allowed not to comply with the requirements.

### 3.1. Reference adhesion before tests

*Table 1: adhesion before tests*

Adhesion		Requirements
ISO 12944-6	Individual values	>2.5 MPa*

\*0 % adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5 MPa)

### 3.2. Assessment after Condensation Test

*Table 2: Assessment after condensation test*

Condensation chamber ISO 6270 720 hours		Requirements
ISO 4628-2	Blistering	≤ 0
ISO 4628-3	Rusting	Ri 0
ISO 4628-4	Cracking	≤ 0
ISO 4628-5	Flacking	≤ 0
ISO 12944-6	Individual values	>2.5 MPa*

\*0 % adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5 MPa)

### 3.3. Assessment after Neutral Salt Spray Test

*Table 3: Assessment after natural salt spray test*

<b>Neutral Salt Spray ISO 9227, 1440 hours</b>		<b>Requirements</b>
ISO 4628-2	Blistering	≤ 0
ISO 4628-3	Rusting	Ri 0
ISO 4628-4	Cracking	≤ 0
ISO 4628-5	Flacking	≤ 0
ISO 12944-6	Corrosion from scribe	≤ 1.5 mm
ISO 12944-6	Individual values	>2.5 MPa*

\*0 % adhesive failure between steel/metalized steel respectively and the first coat (unless pull-off values are at least 5 MPa)

## 4. Results

### 4.1. Dry film thickness

Table 4: Total Dry film thickness test panels. All in  $\mu\text{m}$   
Test date:14-15/07/2025

Pannel	Substrate	Total avg	STD	Min	Max
C-R0-1	SA 2.5	222.3	8.2	215.0	240.0
C-S60-2	SA 2.5	215.2	7.2	206.0	225.0
C-S60-3	SA 2.5	211.8	14.2	188.0	234.0
C-S60-4	SA 2.5	214.3	9.2	199.0	226.0
C-H30-5	SA 2.5	213.8	6.6	201.0	222.0
C-H30-6	SA 2.5	217.2	12.2	203.0	239.0
J-R0-1	Corrosion	234.0	13.1	210.0	246.0
J-S60-2	Corrosion	244.2	16.5	223.0	269.0
J-S60-3	Corrosion	240.3	14.0	217.0	257.0
J-S60-4	Corrosion	246.0	14.9	226.0	270.0
J-H30-5	Corrosion	233.3	10.6	219.0	248.0
J-H30-6	Corrosion	240.7	16.6	211.0	260.0

### 4.2. Assessment before the test

Table 5: Assessment before exposure  
Test date: 29/07/2025

Sample	Substrate	Adhesion class #1	SP/PM/MT/TG	Adhesion class #2	SP/PM/MT/TG	Adhesion class #3	SP/PM/MT/TG	AVG
C-R0-1	SA 2.5	5.60	TG/PS	7.02	TG/PS	6.36	TG/PS	<b>6.33</b>
J-R0-1	Corrosion	5.20	G	7.12	SP	5.69	SP	<b>6.00</b>

SP – adhesion Surface Primer/PM – Adhesion Primer mid coat/ MT – adhesion mid coat topcoat/TG – adhesion topcoat Glue

### 4.3. Assessment After Neutral Salt Spray Test

Table 6: Assessment after Neutral Salt Spray test  
Test date: 28/09/2025

Sample	Substrate	Rusting	Blistering	Flacking	Cracking
		ISO 4628-3	ISO 4628-2	ISO 4628-4	ISO 4628-5
C-S60-2	SA 2.5	0	0	0	0
C-S60-3	SA 2.5	0	0	0	0
C-S60-4	SA 2.5	0	0	0	0
J-S60-2	Corrosion	0	0	0	0
J-S60-3	Corrosion	0	0	0	0
J-S60-4	Corrosion	0	0	0	0

**Table 7: Pull off assessment after Neutral Salt Spray test**

Test date: 05/11/2025

Sample	Substrate	Adhesion class #1	SP/PM/MT/TG	Adhesion class #2	SP/PM/MT/TG	Adhesion class #3	SP/PM/MT/TG	AVG
C-S60-2	SA 2.5	5.75	P	6.76	P	7.52	P	6.68
C-S60-3	SA 2.5	1.8*	G	8.53	P	6.28	P	7.41*
C-S60-4	SA 2.5	2.87*	G	8.53	P	6.28	P	7.41*
J-S60-2	Corrosion	7.87	PM	8.1	PM	5.67	PM	7.21
J-S60-3	Corrosion	5.99	PM	6.7	PM	6.35	PM	6.35
J-S60-4	Corrosion	7.03	PM	5.92	PM	5.18	PM	6.04

- \* Eliminating one point
- SP – adhesion Surface Primer/PM – Adhesion Primer mid coat/ MT – adhesion mid coat topcoat/TG – adhesion topcoat Glue

## 4.4. Assessment after Condensation Test

**Table 8: Assessment After condensation Test**

Test date: 28/08/2025

Sample	Substrate	Rusting	Blistering	Flacking	Cracking
		ISO 4628-3	ISO 4628-2	ISO 4628-4	ISO 4628-5
C-H30-5	SA 2.5	0	0	0	0
C-H30-6	SA 2.5	0	0	0	0
J-H30-5	SA 2.5	0	0	0	0
J-H30-6	SA 2.5	0	0	0	0

**Table 9: Pull off assessment after condensation test**

Test date: 04/09/2025

Sample	Substrate	Adhesion class #1	SP/PM/MT/TG	Adhesion class #2	SP/PM/MT/TG	Adhesion class #3	SP/PM/MT/TG	AVG
C-H30-5	SA 2.5	6.36	PM	7.53	PM	2.84*	TG	6.95
C-H30-6	SA 2.5	8.02	PM	8.19	PM	6.4	PM	7.54
J-H30-5	SA 2.5	5.78	SP	6.52	SP	3.84	SP	5.38
J-H30-6	SA 2.5	5.43	SP	5.37	SP	5.68	SP	5.49

SP – adhesion Surface Primer/PM – Adhesion Primer mid coat/ MT – adhesion mid coat topcoat/TG – adhesion topcoat Glue

## 5. Annexes

### 5.1. Annex 1 – Application Forms

Coating Data	1 <sup>st</sup> Coat	2 <sup>nd</sup> Coat	3 <sup>rd</sup> Coat
Paint system	CB300 S7-2	Ecopoxy 80	Tamaglass PE Tambour
Type	Single component waterborne coat	Epoxy	Polyester aliphatic polyurethane
Company	Coreteel	Tambour	Tambour
Application date	14/07/2025	14/07/2025	15/07/2025
Application time	11:00	13:00	11:00
Thinner	No thinner	Thinner 4-100	Thinner 11
Equipment used	Air spray	Air spray	Air spray
Air pressure (bar)	2	2	2.2
Size nozzle (mm)	1.8	1.8	1.8
Mix ratio by volume	Single component	1 : 1 (V)	1 : 3 (V)
Volume solid (%by volume)	50	80	50
Wet film thickness (µm)	75	185	100
Dry film thickness (µm)	50	150	50
Thinner (% by volume)	0	25	0
Air temperature (°C)	23.9	24.7	24.3
Steel temperature (°C)	23.9	23.9	24.3
Relative Humidity (%RH)	67.9	73.6	67.3
Applicator coatings	Shir Bakish	Shir Bakish	Shir Bakish

## 5.2. Annex 2 – Dry films thickness for each layer

Table 10: Dry film thickness test panels for layer 1 CB300 (Target =50\*  $\mu\text{m}$ ). All in  $\mu\text{m}$   
CB thickness measured is 1/2 of actual CB thickness

Test date:14/07/2025

Sample	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Average	STD
C-R0-1	24.6	18.2	25.4	25.8	25.9	24.9	24.1	2.7
C-S60-2	24.0	19.6	26.9	22.3	27.8	23.2	24.0	2.0
C-S60-3	27.0	22.0	26.2	23.7	34.1	15.3	24.7	3.0
C-S60-4	22.0	19.8	27.2	23.7	21.9	22.0	22.8	2.2
C-H30-5	23.2	24.0	24.4	28.6	16.9	21.4	23.1	2.9
C-H30-6	18.1	21.8	22.8	28.0	25.3	18.9	22.5	1.7
J-R0-1	24.3	29.3	32.2	33.2	39.6	26.8	30.9	2.9
J-S60-2	27.9	34.3	30.1	33.3	37.0	26.0	31.4	2.1
J-S60-3	28.8	35.3	27.9	33.0	26.8	33.9	31.0	1.6
J-S60-4	31.4	26.7	31.9	32.8	26.8	26.2	29.3	2.3
J-H30-5	32.1	41.0	29.5	30.7	40.8	49.2	37.2	1.9
J-H30-6	28.0	30.6	30.9	27.7	38.2	43.1	33.1	1.2

Table 11: Dry film thickness test panels for layer 2 Ecopoxy 80 (Target =150  $\mu\text{m}$ ). All in  $\mu\text{m}$   
Test date: 14/07/2025

Pannel	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Total avg	Layer avg	STD
C-R0-1	203.0	211.0	204.0	215.0	187.0	183.0	200.50	99.80	11.7
C-S60-2	185.0	196.0	203.0	186.0	196.0	190.0	192.67	93.47	6.3
C-S60-3	197.0	193.0	209.0	204.0	194.0	182.0	196.50	98.38	8.6
C-S60-4	196.0	199.0	198.0	188.0	193.0	209.0	197.17	96.27	6.4
C-H30-5	169.0	191.0	193.0	206.0	196.0	196.0	191.83	94.25	11.2
C-H30-6	187.0	196.0	182.0	206.0	187.0	194.0	192.00	92.15	7.8
J-R0-1	222.0	217.0	203.0	201.0	192.0	214.0	208.17	106.73	10.4
J-S60-2	218.0	209.0	214.0	217.0	206.0	213.0	212.83	114.77	4.2
J-S60-3	231.0	227.0	217.0	217.0	217.0	217.0	221.00	124.95	5.8
J-S60-4	207.0	231.0	211.0	197.0	216.0	187.0	208.17	106.47	13.9
J-H30-5	212.0	203.0	216.0	208.0	202.0	220.0	210.17	110.72	6.5
J-H30-6	226.0	202.0	224.0	223.0	194.0	212.0	213.50	117.92	12.1

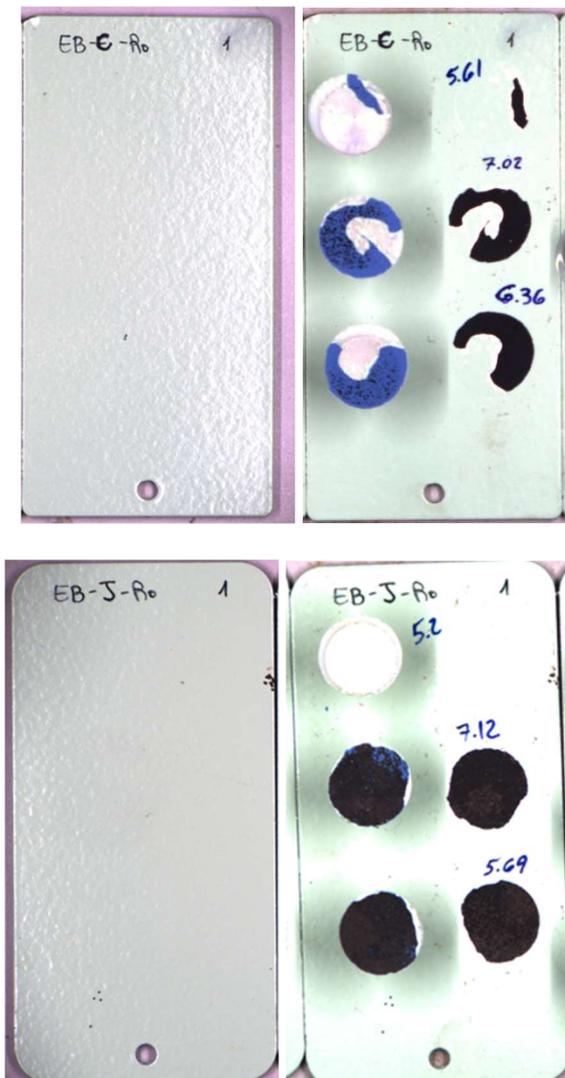
Table 12: Dry film thickness test panels for layer 3 Tamaglass PE (Target =50  $\mu\text{m}$ ). All in  $\mu\text{m}$   
Test date: 15/07/2025

Pannel	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Total avg	Layer avg	STD
C-R0-1	220.0	220.0	217.0	222.0	215.0	240.0	222.3333	8.219219	220.0
C-S60-2	211.0	225.0	219.0	222.0	208.0	206.0	215.1667	7.197608	211.0

C-S60-3	213.0	213.0	234.0	220.0	188.0	203.0	211.8	14.2	213.0
C-S60-4	220.0	199.0	211.0	226.0	222.0	208.0	214.3	9.2	220.0
C-H30-5	213.0	213.0	222.0	219.0	215.0	201.0	213.8	6.6	213.0
C-H30-6	211.0	226.0	207.0	239.0	217.0	203.0	217.2	12.2	211.0
J-R0-1	227.0	244.0	231.0	246.0	246.0	210.0	234.0	13.1	227.0
J-S60-2	269.0	258.0	240.0	226.0	249.0	223.0	244.2	16.5	269.0
J-S60-3	257.0	250.0	239.0	228.0	217.0	251.0	240.3	14.0	257.0
J-S60-4	270.0	258.0	242.0	248.0	232.0	226.0	246.0	14.9	270.0
J-S60-5	248.0	233.0	230.0	246.0	219.0	224.0	233.3	10.6	248.0
J-S60-6	252.0	242.0	251.0	228.0	260.0	211.0	240.7	16.6	252.0

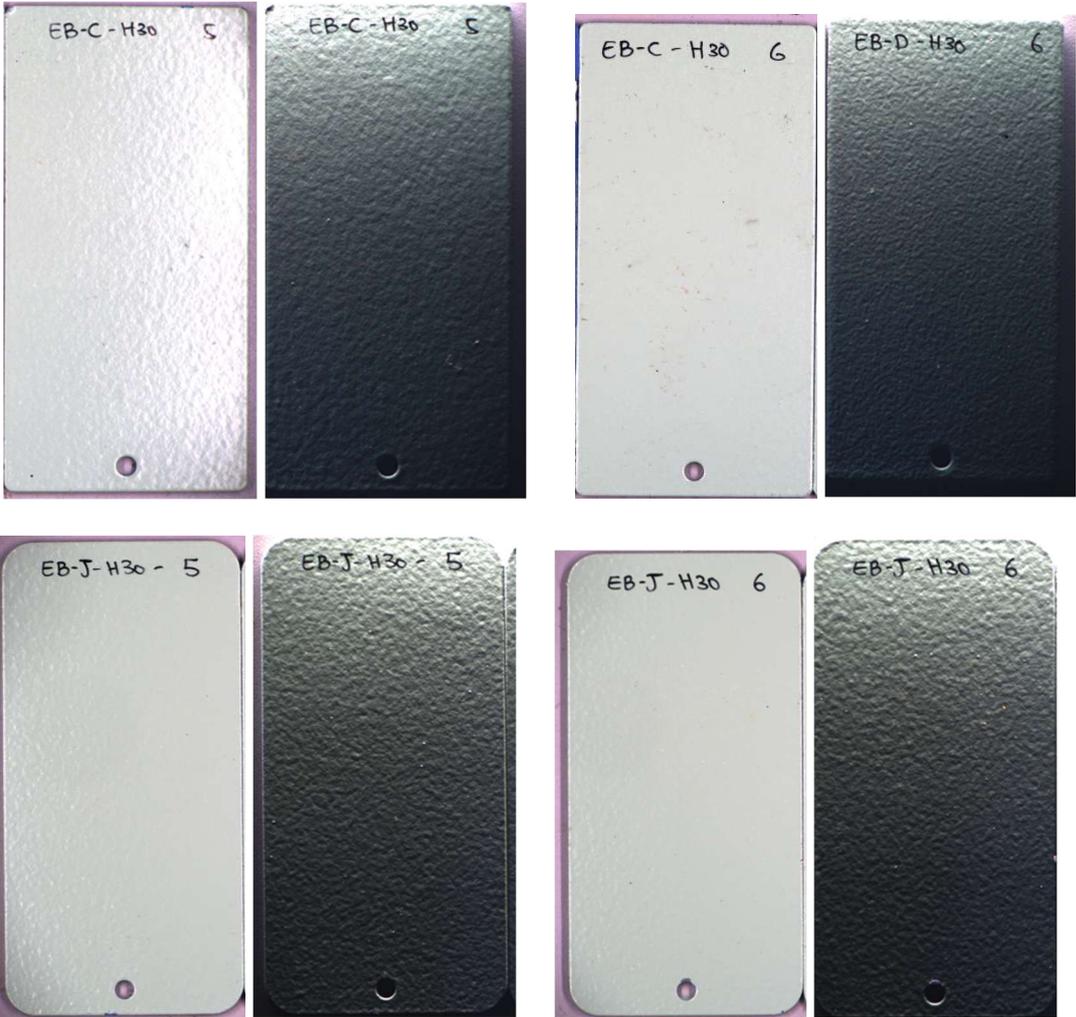
## 5.3. Annex 3 – Photos

### 5.3.1. Reference

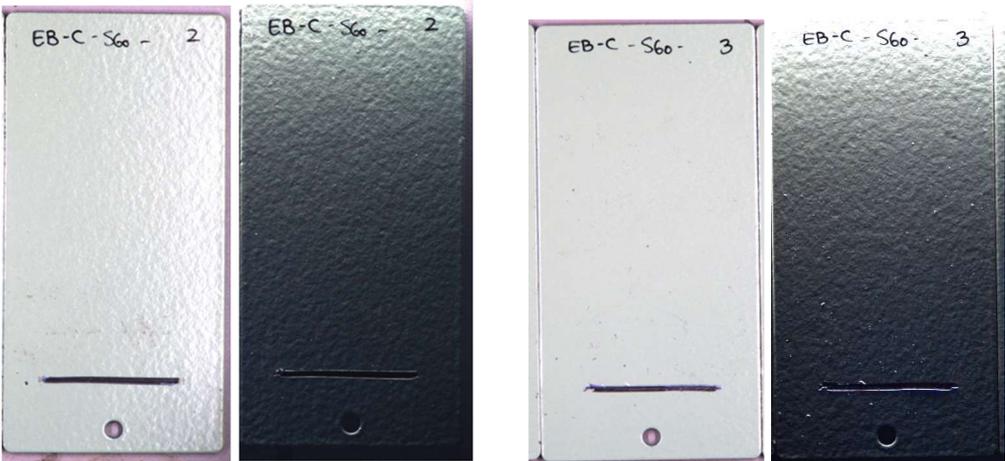


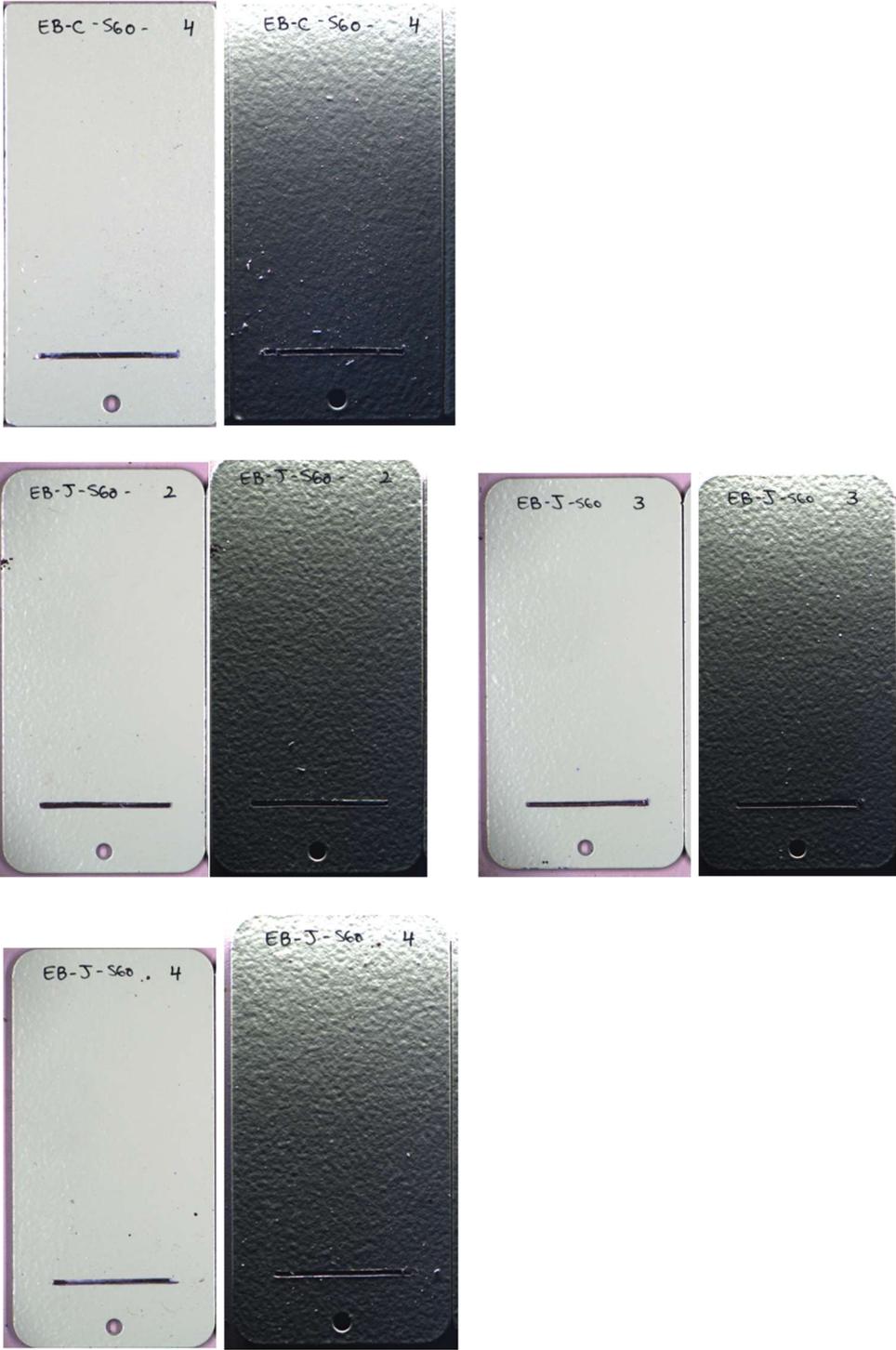
Picture 1: reference panel before and after adhesion tests.

5.3.2. Pretreatment



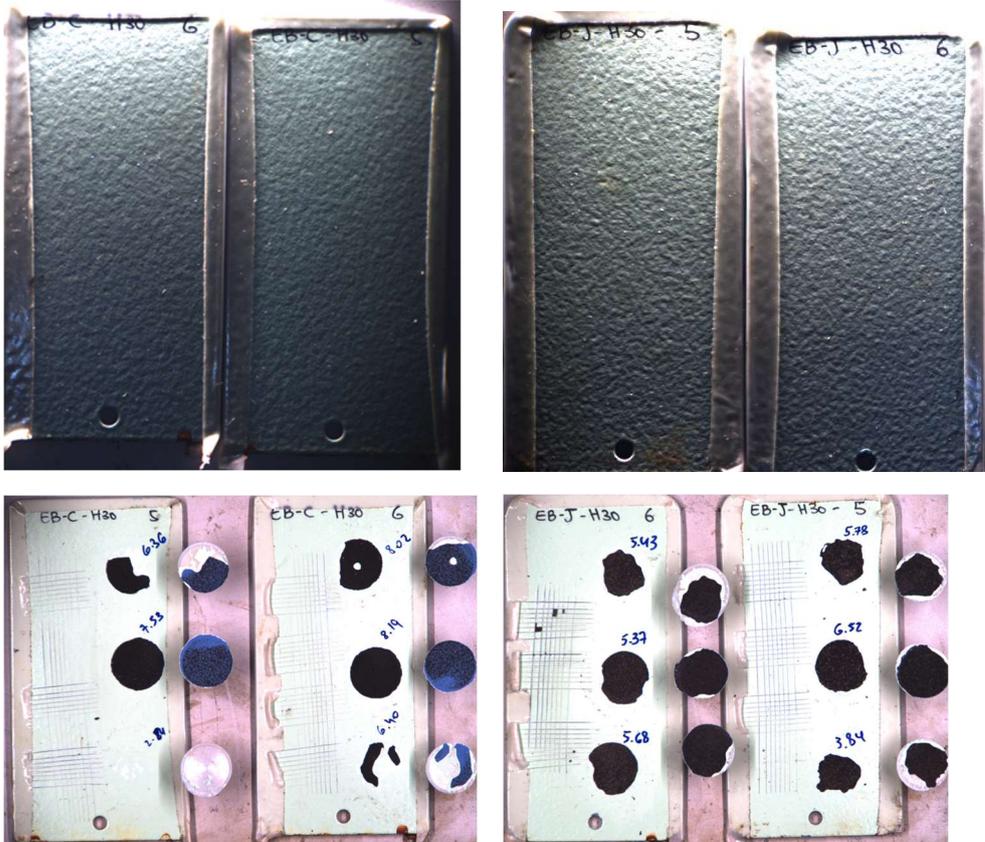
Picture 2: condensation panel before exposure.



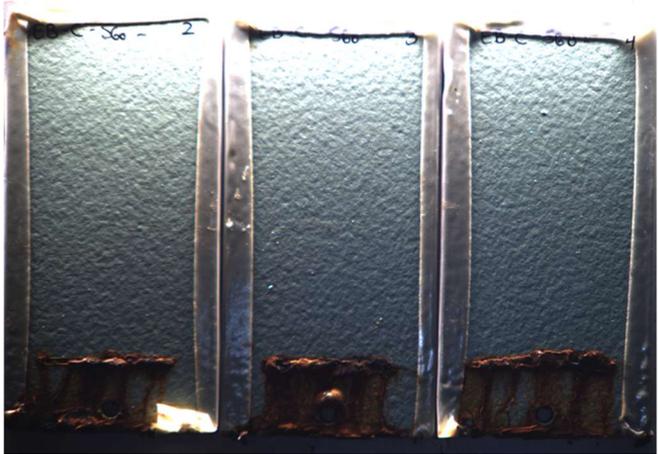


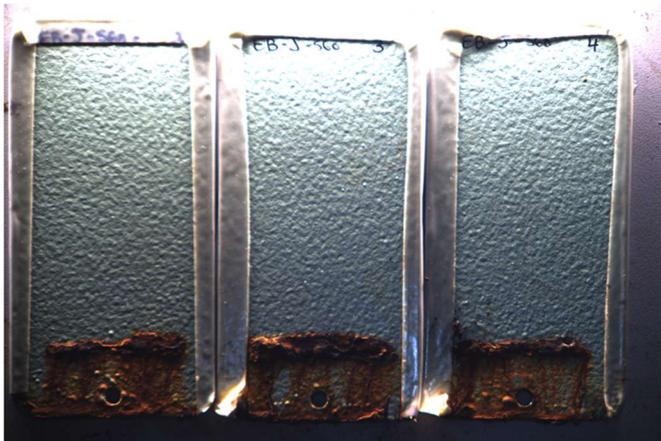
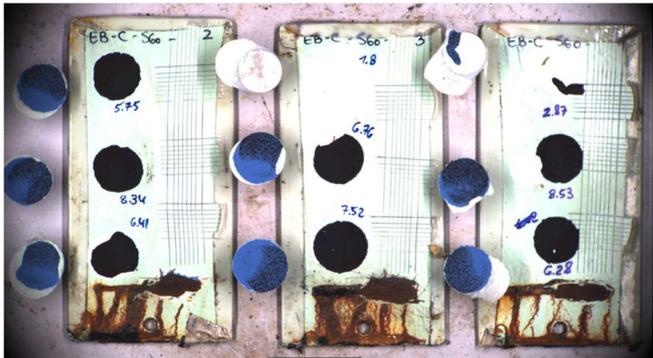
Picture 3: salt spray panel before exposure.

5.3.3. Post treatment



Picture 4: condensation panel post exposure.





Picture 5: salt spray panel post exposure.

## 5.4. Annex 4 – Test procedures for paint system table

*Table 9: Test procedures for paint system applied to carbon steel, hot deep galvanized steel or steel with thermal-sprayed metallic coating for atmospheric corrosivity categories.*

Corrosivity category as defined in ISO 12944-2	Durability ranges according to ISO 12944-1	Test regime 1			Test regime 2
		ISO 2812-2 (water immersion) h	ISO 6270-1 (water condensation) h	ISO 9227 (neutral salt spray) h	<a href="#">Annex B</a> (cyclic ageing test) h
C2	low	—	48	—	—
	medium	—	48	—	—
	high	—	120	—	—
	very high	—	240	480	—
C3	low	—	48	120	—
	medium	—	120	240	—
	high	—	240	480	—
	very high	—	480	720	—
C4	low	—	120	240	—
	medium	—	240	480	—
	high	—	480	720	—
	very high	—	720	1 440	1 680
C5	low	—	240	480	—
	medium	—	480	720	—
	high	—	720	1 440	1 680
	very high	—	—	—	2 688