METALTEK
Test & Analysis Laboratory

METALTEK TEKNOLOJİ LABORATUVARI EĞİTİM VE DANIŞMANLIK HİZMETLERİ SAN. TİC. LTD. ŞTİ.
TEST LABORATORY

Address: Saray OSB Mah. K3 Caddesi No:2/2 HAB OSB 06980
Kahramankazan/ANKARA/TÜRKİYE
Phone: 0 312 385 52 01-03 **Fax:** 0 312 385 52 02

TEST REPORT

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0547-T

AB-0547-T
4592-2/2-ENG
04-22

Customer Name / Address	**Cefa Makina Sanayi ve Ticaret A.Ş** İvedik OSB Mah.385 Cd.No:24 Ostim Yenimahalle /ANKARA
Order No / Date	6170 / 24.12.2021
Name and Identity of the Test Sample	Zinc primer + Electrostatic Powder Coated Cabinet Parts
The Date of Receipt of the Test Sample	12.01.2022
Remark(s)	---
Date of the Test	13.01.2022 – 27.04.2022
Number of Page of the Report	4

The test standards that are shown with * aren't in our accreditation test scope.

METALTEK TEKNOLOJİ LABORATUVARI EĞİTİM VE DANIŞMANLIK HİZMETLERİ SAN. TİC. LTD. ŞTİ. had been accredited by TURKAK under registration number AB-0547-T for EN ISO/IEC 17025:2017 as test laboratory.

Turkish Accreditation Agency (TURKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.

The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

Seal	Date of the Issue	Person in Charge of the Test	Writer of the Report	Approval
METALTEK TEKNOLOJİ TEST & ANALYSIS LABORATORY	28.04.2022	**Yeşim AKSU ERTÜRK** MsC. Chemist Laboratory Deputy Specialist	**Ahmet Yusuf TÜRE** Chemical Engineer Test Coordinator	**Didar AYDIN** Chemical Engineer Laboratory Assistant Manager

METALTEK
Test & Analysis Laboratory

METALTEK TEKNOLOJİ LABORATUVARI EĞİTİM VE DANIŞMANLIK HİZMETLERİ SAN. TİC. LTD. ŞTİ.
TEST LABORATORY

Address: Saray OSB Mah. K3 Caddesi No:2/2 HAB OSB 06980
Kahramankazan/ANKARA/TÜRKİYE
Phone: 0 312 385 52 01-03 **Fax:** 0 312 385 52 02

TEST REPORT

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0547-T

AB-0547-T
4592-2/2-ENG
04-22

1. CUSTOMER DEMAND:

The test below given table must be carried out on the samples that are identified at the section 2. The test results must be reported after the test.

Referrer Standard	Name of the Test	Test Standard	Evaluation Standard	Intermediate Control Time	Test Duration
---	Salt spray tests- NSS	EN ISO 9227	*EN ISO 4628-2 *EN ISO 4628-3 *EN ISO 4628-4 *EN ISO 4628-5 *EN ISO 4628-8 EN ISO 2409	2000th Hour	2500 Hours
---	Measurement of coating thickness	EN ISO 2178	---	---	---
---	Cross-Cut Test	EN ISO 2409	---	---	---

2. SAMPLE UNDER THE TEST:

All information regarding the samples has been declared by the customer below given table.

Name of the Sample	Substrate Material	Pre-Treatment Process	Base Coat	Topcoat	Brand / Model	Preparation / Condition of the Sample	Dimension / Piece
Cabinet Part	sheet plate	Nano Ceramic Coating Washing with Metal Surface Preparer	Zinc primer	Electrostatic Powder Paint	GENPOWER	Prepared by the customer	100x150 mm / 10 pieces

3. TEST AND EVALUATION STANDARDS:

EN ISO 9227	Corrosion tests in artificial atmospheres — Salt spray tests
EN ISO 2178	Non-magnetic coatings on magnetic substrates - Measurement of coating thickness – Magnetic method
EN ISO 2409	Paints and varnishes - Cross-cut test
*EN ISO 4628-2	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
*EN ISO 4628-3	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
*EN ISO 4628-4	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
*EN ISO 4628-5	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
*EN ISO 4628-8	Paints and Varnishes – Evaluation of Degradation of Coatings – Designation of Quantity and Size of Defects, and of Intensity of Uniform Changes in Appearance – Part 8: Assessment of Degree of Delamination and Corrosion Around a Scribe or Other Artificial Defect

METALTEK TEKNOLOJİ TEST & ANALİZ LABORATUVARI

4. TEST EQUIPMENT INFORMATION:

Test Equipment Name	Calibration Validity Period	Manufacturer
Film Thickness Meter MT-KAL-119	03.06.2021 – 03.06.2022	DEFELSKO
Salt Spray Test Cabinet MT-SİS-087	29.05.2021 – 29.05.2023	Q-LAB
Conductivity Meter MT-İLT-156	The calibration is done before every test.	HANNA
pH Meter MT-PHM-110	The calibration is done before every test.	THERMO SCIENTIFIC
Cross-Cut Blade MT-KSM-108 (3 mm)	26.05.2021 – 26.05.2022	BYK

5. TEST RESULTS:

5.1. Measurements Before The test:

Evaluation Criteria	Requirements Determined By the Laboratory	Test Results
		6 numbered panel
Film Thickness, µm	---	204.2
Adhesion degree	≤ Class 1	Class 0
	CONCLUSION	PASS
The test results were evaluated according to the "Simple Acceptance Rule". (Simple Acceptance Rule: The test results were evaluated without including laboratory measurement uncertainty (confidence level: k:2, 95%) and a declaration of conformity was made according to the limit value.)		
Information about the test results was given in "Appendix-2/3: Reference Comparison Photos Given in Test Standards".		

METALTEK TEKNOLOJİ TEST & ANALYSIS LABORATORY

5.2. Test Results:

Evaluation Criteria	Requirements Determined By the Laboratory	Test Results		
		3 numbered panel	5 numbered panel	8 numbered panel
Film Thickness, µm	---	193	189.6	186.9
Adhesion Degree	≤ Class 2	Class 2	Class 2	Class 0
Degree of Blistering	≤ 2(S2)	0(S0)	0(S0)	0(S0)
Degree of Rusting	≤ Ri 2	Ri0	Ri0	Ri0
Degree of Cracking	0S(0)	0(S0)	0(S0)	0(S0)
Degree of Flaking	0S(0)	0(S0)	0(S0)	0(S0)
Delamination Around the Scribe, d (mm)	---	~8	~5	<1
Corrosion creep around the scribe, c (mm)	≤ 2 mm	0	0	0
AS ADDITIONAL INFORMATION; White Rust Creep From Zinc Primer Coating Around Scratch, c(mm)	---	~7	~3	<0.5
	CONCLUSION	**PASS**	**PASS**	**PASS**

The test results were evaluated according to the "Simple Acceptance Rule".
(Simple Acceptance Rule: The test results were evaluated without including laboratory measurement uncertainty (confidence level: k:2, 95%) and a declaration of conformity was made according to the limit value.)

Information about the test results was given in "Appendix-2/2: Reference Comparison Photos Given in Test Standards and Appendix-3/3: Explanations for the Test Results".

Note-1/5: Uncertainty measurements that was calculated by our laboratory are;

Salt Spray Test Cabinet – MT-SİS-087	±1.0 ^{0}C for 35 ^{0}C
Film Thickness Meter – MT-KAL-119	±1.5 µm for >150 µm
Delamination and Corrosion creep around the scribe	± 0.2 mm

Note-2/5: The ambient conditions of the laboratory area where the test(s) were performed were kept at 23±2 ^{0}C temperature and 50±5% Rh humidity value during the test as requested in the relevant test standard and/or test equipment guides.
Note-3/5: There is not any abnormality or incident occurring during the entire test.
Note-4/5: Tested samples were sent to the customer with the test report.
Note-5/5: Appendices of the test report are only sent to customer by e-mail. They are not submitted in addition to the original test report.

Appendix-1/3: Test Photographs
Appendix-2/3: Reference Comparison Photos Given in Test Standards
Appendix-3/3: Explanations for the Test Results

METALTEK TEKNOLOJİ TEST & ANALYSIS LABORATORY