



TEST REPORT

Job No./Report No TR821993

Date:18 January 2016 Page 1 of 10

ELASTRON KIMYA SAN TIC AŞ

GEBZE ORGANİZE SANAYİ BÖLGESİ (GOSB) TEMBELOVA ALANI 3200 SOKAK NO: 3201 KOCAELİ/ TÜRKİYE

TEL: 02626430001

FAX:

To the attention of Mithat Akan

The following sample(s) was (were) submitted and identified by/on behalf of the client as:

Sample No.	Sample Description
A	Pulron 101 Series

Client's reference No. : TR 821993
Buyer : Not Provided
Order No. : Not Provided
Division : Not Provided
Model/Style No. : Not Provided
Article No. : BO20140277/MDe
Age Grade : Not Provided
Manufacturer : ELASTRON KIMYA SAN. TİC. A.Ş.
Country of Origin : Not Provided
Country of Destination : Not Provided
Shipment Date : Not Provided
Fiber Composition : Not Provided
Fabric Weight : Not Provided
End Use : Not Provided
Sample Receiving Date : 11 September 2015
Test Performing Period : 11 September 2015 ~ 18 January 2016
Overall Conclusion : **SEE RESULTS**
Test Results : Please refer to the next page(s).
Performed Test Summary: Selected test(s) as requested by client against Client's performance standard.

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Subject : Coating testing according to ISO 12944

Methods

Analysis	Method	Q	s
Water condensation test	ISO 6270-1		
Neutral salt spray test	ISO 9227		
Water immersion test	ISO 2812-2		
Coating thickness			
Pull-off test	ISO 4624		

Q = accredited by RvA, s = subcontracted, Qs = subcontractor accredited by RvA

The test results relate to the tested items only.
Test reports without SGS seal and authorised signatures are invalid.
Reported results do not include uncertainties.

Issued in Istanbul
Signed for and on behalf of
SGS Supervise Gözetme Etüd Kontrol Servisleri A.Ş.

Cenk Hacıoğlu
Customer Services Supervisor

Yağız Barın
Section Manager



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Results

The coating system has been assessed to corrosivity category C5-M with high durability range, as defined in ISO 12944-2. For this category, the following test procedures have been executed:

- Water condensation test (720 hours), according to ISO 6270-1;
- Neutral salt spray test (1440 hours), according to ISO 9227;
- Water immersion test (2000 hours), according to ISO 2912-2.

Before aging the thicknesses of the coatings have been determined. The results are listed in the table below.

Table 1: Coating thicknesses

Sample	Meas. 1	Meas. 2	Meas. 3	Meas. 4	Meas. 5	Min.	Max.	Avg.	Stdev.
	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)
1	566	565	586	625	587	565,0	625,0	585,8	24,3
2	577	603	592	595	605	577,0	605,0	594,4	11,1
3	606	584	565	592	575	565,0	606,0	584,4	15,7
4	558	545	552	642	583	545,0	642,0	576,0	39,6
5	559	536	546	600	553	536,0	600,0	558,8	24,6
6	608	603	626	637	640	603,0	640,0	622,8	16,7
7	606	638	580	548	561	548,0	638,0	586,6	36,1
8	540	555	558	584	613	540,0	613,0	570,0	28,8
9	595	599	555	599	553	553,0	599,0	580,2	24,0
10	592	566	528	540	561	528,0	592,0	557,4	24,8
11	550	525	545	610	572	525,0	610,0	560,4	32,4
12	583	584	566	554	579	554,0	584,0	573,2	12,9

Neutral Salt spray test (ISO 9227), 1440 hours

Table 2: Coating thicknesses after neutral salt spray test

Sample	Meas. 1	Meas. 2	Meas. 3	Meas. 4	Meas. 5	Min.	Max.	Avg.	Stdev.
	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)
1	548	539	566	604	569	539,0	604,0	565,2	25,0
2	561	581	574	575	588	561,0	588,0	575,8	10,0
3	592	563	538	571	551	538,0	592,0	563,0	20,5

The average reduction in coating thickness is 3,5%. There are no detectable defects caused by blistering, rusting, cracking or flaking. The only rusting is on the scribe line.

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Water condensation test (ISO 6270-1), 720 hours, 38±2°C

Table 3: Coating thicknesses after water condensation test

Sample	Meas. 1	Meas. 2	Meas. 3	Meas. 4	Meas. 5	Min.	Max.	Avg.	Stdev.
	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)
4	542	522	529	625	556	522,0	625,0	554,8	41,3
5	538	511	525	580	525	511,0	580,0	535,8	26,5
6	575	548	600	634	628	548,0	634,0	597,0	36,1

The average reduction in coating thickness is 4,0%. There are no detectable defects caused by blistering, rusting, cracking or flaking.

Water immersion test (ISO 2912-2), 2000 hours

Table 4: Coating thicknesses after water immersion test

Sample	Meas. 1	Meas. 2	Meas. 3	Meas. 4	Meas. 5	Min.	Max.	Avg.	Stdev.
	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)	(µm)
7	588	591	555	530	545	530,0	591,0	561,8	26,8
8	520	530	535	567	600	520,0	600,0	550,4	32,8
9	575	574	534	579	532	532,0	579,0	558,8	23,6

The average reduction in coating thickness is 3,8%. There are no detectable defects caused by blistering, rusting, cracking or flaking. The only rusting is on the scribe line.

Pull-off test (ISO 4624)

Table 5: Results of pull-off test before and after aging.

#	unaged	after neutral saltspray			after water condensation			after water immersion		
		1	2	3	4	5	6	7	8	9
	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
1	3,5 A	2,4 A	3,0 Y	2,6 Y	2,8 Y	3,2 Y	2,6 Y	2,6 Y	2,0 Y	2,4 Y
2	3,5 Y	3,8 Y	3,2 Y	2,8 Y	4,0 A	3,0 Y	4,2 Y	2,8 A	3,0 A	2,8 Y
3	3,8 Y	2,5 Y	3,5 Y	3,9 A	3,9 Y	3,7 A	3,8 Y	2,1 Y	3,2 A	2,4 A
4	4,5 Y	2,4 Y	3,4 Y	2,6 Y	3,6 Y	3,5 Y	2,8 Y	3,0 A	3,2 A	2,1 A
5	3,2 A	4,0 A	2,4 Y	4,0 A	2,8 Y	2,6 Y	2,6 Y	2,4 Y	2,1 Y	1,9 Y
6	3,0 Y	2,4 Y	3,0 Y	4,2 A	3,1 Y	2,8 Y	2,6 Y	3,2 A	2,6 A	2,1 A
average	3,6	2,9	3,1	3,4	3,4	3,1	3,1	2,7	2,7	2,3

A = cohesive failure of substrate, Y = cohesive failure of adhesive.

**** These tests have been performed at SGS INTRON as subcontracted.**

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ID	Before test	After test
1		
2		

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