Institut
für Galvano- und Oberflächentechnik
Solingen GmbH & Co. KG

Report on Findings

20180203 – 1A

- english version -
Truncated version
dated
12th July 2018

Commissioning Party:

Renusol Europe GmbH
Mr Nils Rossbach
Piccolominstr. 2
51063 Cologne

Testing location:

Institut für Galvano- und Oberflächentechnik
Solingen GmbH & Co. KG
Grünewalder Str. 29-31
42657 Solingen

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-11282-01-00

Institut für Galvano- und Oberflächentechnik Solingen GmbH & Co. KG
Grünewalder Str. 29-31 42657 Solingen
Phone +49 212 2494-700 • Fax +49 212 2494-715 • info@igos.de • www.igos.de

The task

Mr Rossbach of Renusol Europe GmbH commissioned IGOS to perform salt spray testing to DIN EN ISO 9227 NSS:2017-07 on a total of two aluminium assemblies with a number of terminals.

The testing periods and assessment criteria were selected on the basis of DIN EN ISO 12944-6:1998 for the corrosion classifications of "C4 to C5 high" for 1440 hrs.

This report on findings replaces the report 20180203-1_Truncated version dated 02.07.2018.

Testing requirements:

DIN EN ISO 12944-6:1998	Requirements for C4 and C5	
Salt spray test to DIN EN ISO 9227 NSS **C4 high: 720 hrs. test duration** **C5 high: 1440 hrs. test duration**	Surface corrosion to DIN EN ISO 4628-3:2016	Ri 0 0%
	Blistering to DIN EN ISO 4628-2:2016	m0(S0)
	Sub-surface migration around the scribe In accordance with DIN EN ISO 17872 By analogy to DIN EN ISO 4628-8:2013	≤ 1 mm Not applicable due to coating and component configuration
	Degree of cracking to DIN EN ISO 4628-4:2016	m0(S0)
	Degree of flaking to DIN EN ISO 4628-5:2016	m0(S0)
	Cross-cut adhesion test to DIN EN ISO 2409:2013	Gt 0/1 Not applicable due to coating and component configuration

Table 01: Test requirements

Implementation:

Test period:	02.04. – 01.06.2018
Test duration:	1440 hrs.
Specimens:	Total of 15 terminals
Testing chamber:	Erichsen 2
Testing chamber volume:	2000 l
Orientation during testing:	15 – 25° from the perpendicular

Results

Testing duration	Specimen	Evaluation	Fig.
1440 hrs.	Silver	Zinc corrosion on screws Zinc corrosion on terminals RS1 40 17, 40 17, 40 17 & 30 15 No substrate corrosion on steel parts Aluminium corrosion on terminals, aluminium No blistering, cracks or flaking	01 – 04
	Black	Zinc corrosion on screws Zinc corrosion on terminals RS1 40 17, 40 17, 49 15 & 28 17 No substrate corrosion on steel parts No aluminium corrosion on terminals, aluminium No blistering, cracks or flaking	05 – 08

Table 02: Results

Images

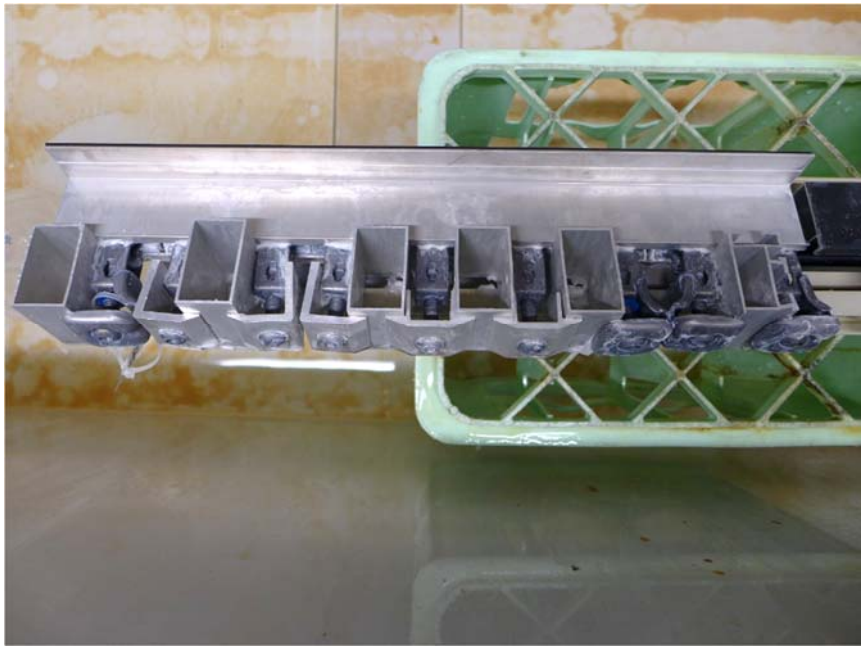

Fig. 01

Silver specimen

Test time: 1440 hrs.

Overview 1

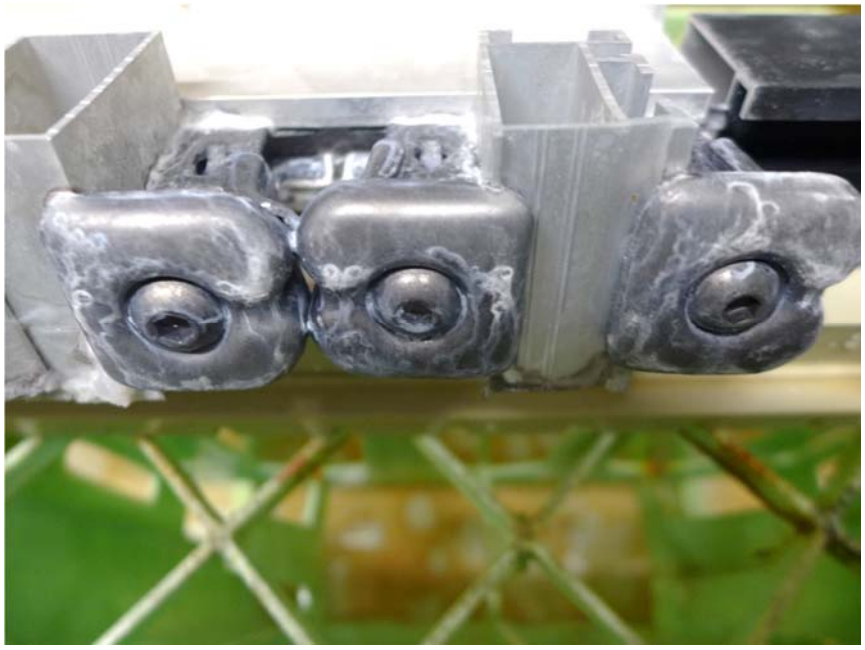

Fig. 02

Silver specimen

Test time: 1440 hrs.

Detail view 1
Typical specimen

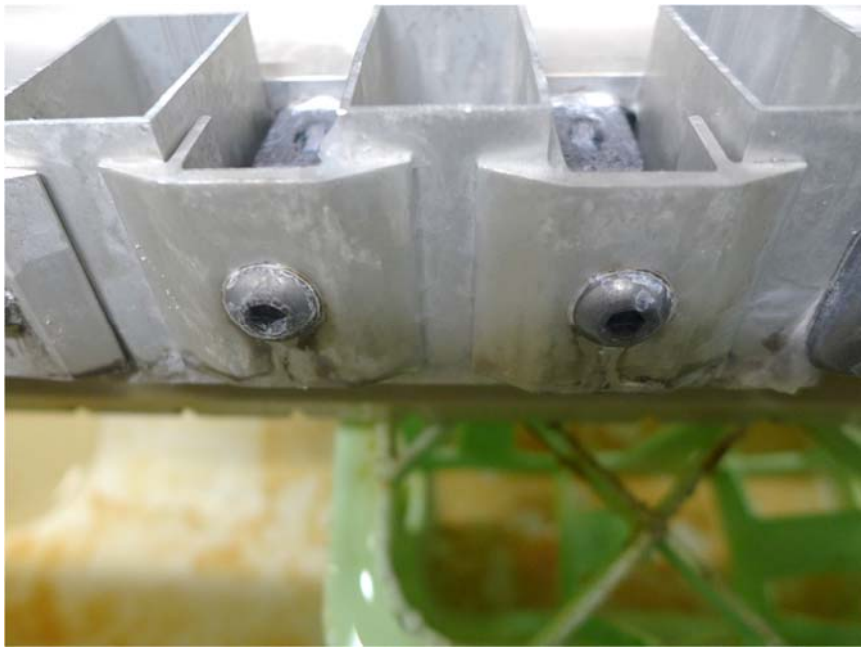

Fig. 03

Silver specimen

Test time: 1440 hrs.

Detail view 2
Typical specimen

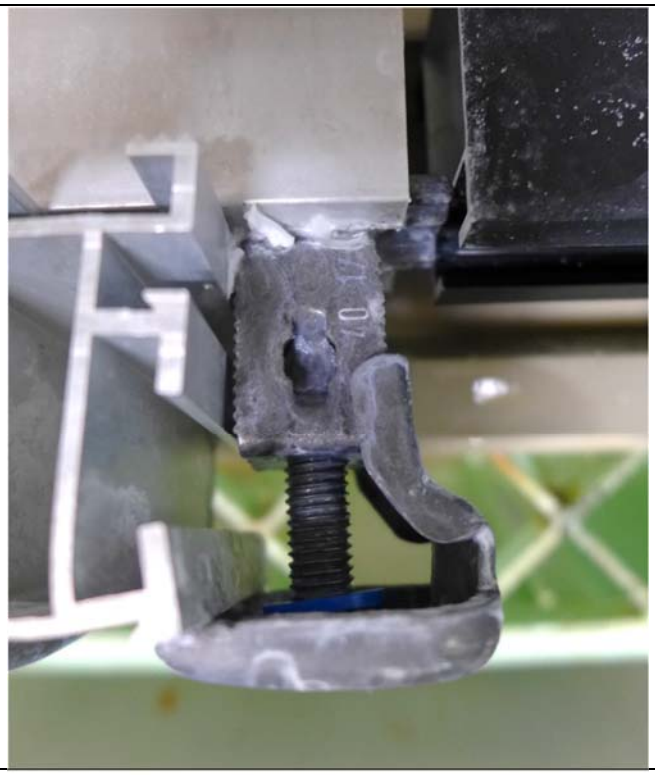

Fig. 04

Silver specimen

Test time: 1440 hrs.

Detail view 3
Typical specimen

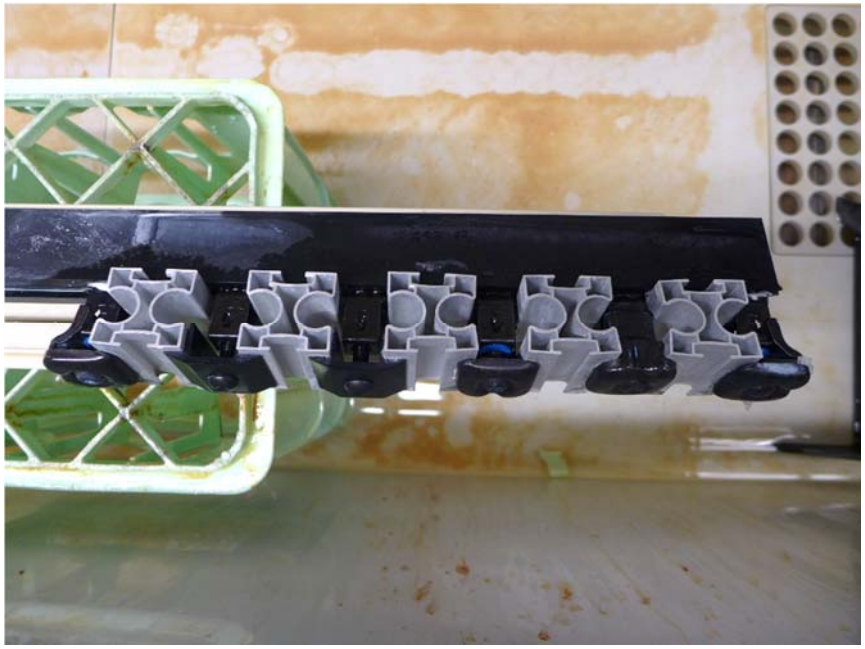

Fig. 05

Black specimen

Test time: 1440 hrs.

Overview 1

Fig. 06

Black specimen

Test time: 1440 hrs.

Detail view 1
Typical specimen

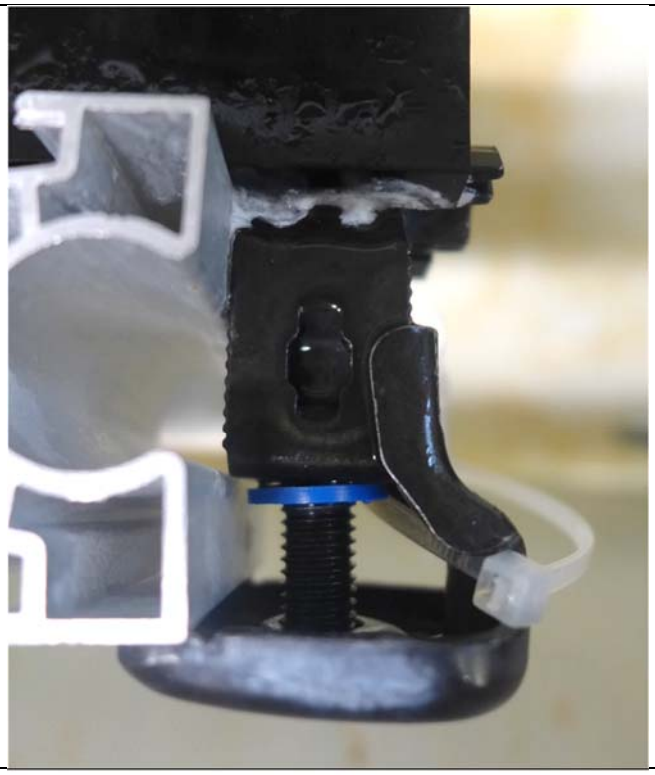

Fig. 07

Black specimen

Test time: 1440 hrs.

Detail view 2
Typical specimen

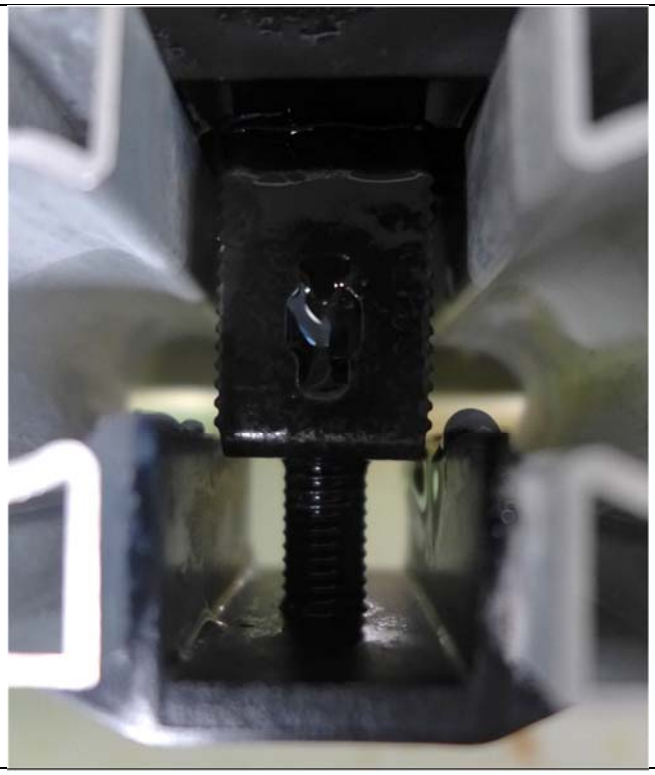

Fig. 08

Black specimen

Test time: 1440 hrs.

Detail view 3
Typical specimen

Conclusions

Silver specimen

The testing requirements of 1440 hrs. of salt spray testing without substrate corrosion, blistering, cracks or flaking were met for the clamping feet, screws and terminal caps RS 1.

The aluminium terminal caps did not meet the requirement for no substrate corrosion.

Black specimen

The testing requirements of 1440 hrs. of salt spray testing without substrate corrosion, blistering, cracks or flaking were met for the clamping feet, screws and terminal caps RS 1 and the aluminium terminal caps.

Category to DIN EN ISO 12944-2:1998 period of protection: high	DIN EN ISO 9227 NSS Salt spray testing [hrs.]
C4	720
C5	1440

Table 03: Classification of specimen terminals, Renusol
Classification C5 on the basis of DIN EN ISO 12944-6 for long protection periods

IGOS GmbH & Co. KG

Dipl.-Ing. Josef Andrek
Managing Director

Nadine Drath
Electroplater