

REPORT No. 14_08303-a

CLIENT	INDUSTRIAS GALTES, S.A.
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PURPOSE	Salt spray resistance
TESTED MATERIAL	Hinge Ref. SERIE HINGES HIDROBI
RECEIPT DATE	17.11.2014
TEST DATES	24.11.2014 / 15.12.2014
REPORT EMISSION DATE	19.12.2014



Blanca Ruiz de Gauna
Construction Materials Characterization
Laboratory Manager
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* In case of a lawsuit, the original Spanish version shall be taken as reference.

* The results contained in this report refer solely and exclusively to the material tested at the time and under the conditions in which the measurements were taken.

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1. TEST SPECIMENS

On 17.11.2014 Foundation Tecnalia R&I received from the company **“INDUSTRIAS GALTES, S.A.”** the following material:

- Hinge Ref. SERIE HINGES HIDROBI

2. TEST REQUESTED

The requested test is the following:

- ♦ Building hardware. Corrosion resistance. Requirements and test methods, according to UNE-EN 1670:2007 and UNE-EN 1670:2007/AC:2008

3. CARRIED OUT TEST

- ♦ Building hardware. Corrosion resistance. Requirements and test methods, according to UNE-EN 1670:2007 and UNE-EN 1670:2007/AC:2008

The test is carried out according to UNE-EN 1670:2007 and UNE-EN 1670:2007/AC:2008 following the methodical testing to UNE-EN ISO 9227:2012.

Samples are tested to determine the variations undergone while subjected to neutral salt fog in a specifically designed test chamber.

Prior to carrying out the test, we check to ensure the operational stability of the chamber by inserting reference test specimens. The average corrosion rate of these reference samples is of 71.53 g/m².

Test specimens:

- Number of parts tested: 2 (provided by the client).
- Test specimen cleaning process following the test: water
- Angle of tilt of the test specimens in the test chamber: 20°

The conditions and characteristics of the test have been as follows:

- Saline solution: (50 ± 5) g/l of NaCl
 - Water: de-mineralised
 - Salt: for analysis 99.5% purity
- Temperature of the test enclosure: 35°C
- pH of the test solution: 6.7 (measured electrostatically at 25°C)
- pH of the solution collected: 6.8 (measured electrostatically at 25°C)
- Spraying: 1.6 ml/hour
- Concentration of the solution output: 1.031 g/cm³

The corrosion resistance is expressed as the degree of corrosion resistance established in the UNE-EN 1670: 2007 and UNE-EN 1670: 2007 / AC: 2008:

- Grade 0: < 24 hours
- Grade 1: 24 hours
- Grade 2: 48 hours
- Grade 3: 96 hours
- Grade 4: 240 hours
- Grade 5: 480 hours

The test duration was 480 hours on request.

4. RESULTS

- ♦ **Building hardware. Corrosion resistance. Requirements and test methods, according to UNE-EN 1670:2007 and UNE-EN 1670:2007/AC:2008**

The results obtained are shown in the attached tables:

Table I

Reference	No. Hours	Assessment
Hinge Ref. SERIE HINGES HIDROBI	24	No alteration
	48	No alteration
	96	No alteration
	240	No alteration
	480	No blistering, no point > 1.5 mm decoating

Table II

Reference	Degree to corrosion according to UNE-EN 1670:2007
Hinge Ref. SERIE HINGES HIDROBI	Grade 5