



BISK S.A. 05-532 Baniocha, Łubna ul. Podleśna 19

LABORATORY OF ANTICORROSIVE TESTS

BISK S.A.

Test Report
No. LBA - 4/2016

Subject of tests: Testing of corrosion resistance in the neutral salt spray atmosphere of galvanic chromium coatings and veneer on the bidet faucet of GreenHomeDesign.

Tests started: 8th June, 2016.

Tests completed: 8th July, 2016.

The report elaborated: 18th July, 2016.

The report prepared by: Maciej Bargiel

The report checked by: Przemysław Grabowski

The report contains pages: 5

The report prepared in copies: 2

Two handwritten signatures in blue ink are shown. The first signature is above a dotted line and appears to be "Maciej Bargiel". The second signature is below a dotted line and appears to be "Przemysław Grabowski".

1. Description of samples

The tests involved a complete bidet faucet together with the clamping sleeve and clamping nut without supply hoses.

2. Test Methods

Determination of resistance to neutral brine mist atmosphere was carried out in accordance with PN-EN ISO 9227:2012 p. 1., 3.1., 3.2.2., 3.3., ., 5.1., 5.2., 6., 7., 8., 9., 10., 11., 12.

"Corrosion tests in artificial atmospheres. Tests in brine spray." The study took place in the salt chamber: type RK-90, serial number Rk1403178, manufactured by Shanghai RongkeTesting Equipment Co. Ltd., China, under the following conditions:

- | | | |
|--|---|---------------------------------|
| • The concentration of NaCl solution | - | (50±5) g/dm ³ |
| • Operating temperature of the chamber | - | 34.1 - 35.6 °C |
| • pH of NaCl solution | - | 6.20 - 6.40 |
| • pH of condensate | - | 6.40 - 6.90 |
| • stała pluwiometryczna - ??? constant | - | 1.2 - 1.5 ml/h |
| • the density of condensate | - | 1.034 - 1.036 g/cm ³ |
| • total test time | - | 720 h |

The evaluation of corrosion damage was carried out according to PN-EN ISO 10289: 2002 - "Methods of corrosion testing for metallic coatings and other inorganic coatings on metallic substrates - Rating of samples and finished products subjected to the corrosion tests" specifying:

- The protection indicator R_p - the ability of the protective coating to protect the base metal (steel, brass, ZnAl) against corrosion;
- The appearance indicator R_A - change in the appearance of the protective coating.

Because of the faucet body coverage made of a wooden veneer and due to the inadequacy of the test subject to the abovementioned standard a word description was given, supported by photographs in order to present the test result.

3. Test Results

Results of corrosion resistance tests in a neutral brine mist atmosphere are given in Table 1, and the appearance of elements after the tests is shown in pictures 1 - 3.

Table 1

Part Number	Sample Name	Appearance of Samples After 720 h Testing
1	Spout of the faucet (chrome)	No corrosive change R_p10 , R_A10
2	Construction of perlator?? (chrome)	No corrosive change R_p10 , R_A10
3	The faucet body - veneer	Drawing of growth rings preserved, visible minimal discolorations. The edges of the body with no visible delamination.
4	The faucet head holder - veneer	Drawing of growth rings preserved, visible minimal discolorations. Slight delamination at the edges of the handle.

Picture 1



Picture 2



Picture 3



Grading scale:

Protection Indicator R_p :

- 10 - there is no corrosion of the substrate
- 9 - corrosion on the substrate $\leq 0.1\%$ of the sample surface
- 8 - corrosion on the substrate $> 0.1\%$, and $\leq 0.25\%$ of the sample surface
- 7 - corrosion on the substrate $> 0.25\%$, and $\leq 0.5\%$ of the sample surface
- 6 - corrosion on the substrate $> 0.5\%$, and $\leq 1.0\%$ of the sample surface
- 5 - corrosion on the substrate $> 1.0\%$, and $\leq 2.5\%$ of the sample surface
- 4 - corrosion on the substrate $> 2.5\%$, and $\leq 5.0\%$ of the sample surface
- 3 - corrosion on the substrate $> 5.0\%$, and $\leq 10\%$ of the sample surface
- 2 - corrosion on the substrate $> 10\%$, and $\leq 25\%$ of the sample surface
- 1 - corrosion on the substrate $> 25\%$, and $\leq 50\%$ of the sample surface
- 0 - corrosion on the substrate $> 50\%$ of the sample surface

Appearance Indicator R_A :

- 10 - no defects
- 9 - appearance defects on $\leq 0.1\%$ of the sample surface
- 8 - appearance defects on $> 0.1\%$, and $\leq 0.25\%$ of the sample surface
- 7 - appearance defects on $> 0.25\%$, and $\leq 0.5\%$ of the sample surface
- 6 - appearance defects on $> 0.5\%$, and $\leq 1.0\%$ of the sample surface
- 5 - appearance defects on $> 1.0\%$, and $\leq 2.5\%$ of the sample surface
- 4 - appearance defects on $> 2.5\%$, and $\leq 5.0\%$ of the sample surface
- 3 - appearance defects on $> 5.0\%$, and $\leq 10\%$ of the sample surface
- 2 - appearance defects on $> 10\%$, and $\leq 25\%$ of the sample surface
- 1 - appearance defects on $> 25\%$, and $\leq 50\%$ of the sample surface
- 0 - appearance defects on $> 50\%$ of the sample surface

Classification of defects in appearance:

- A - Stains and/or color change caused by the coating pollution (other than that from the products of substrate corrosion)
- D - Products of the cathodic coating corrosion
- F - Peeling
- G - Blistering

Evaluation of the intensity of the occurring defects:

- vs - very small
- s - small
- m - medium
- x - duży / large