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DEVICE

Kawasaki Robotic GmbH
Ultra-Corrosion Nickel
Report No. KA 1801-994

DUPLICATE

Statement of
Qualification

Chemical Resistance

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Statement of Qualification

Customer

Kawasaki Robotics GmbH
Sperberweg 29
41468 Neuss
Germany

Component tested

Category: Materials

Subcategory: Metals

Product name: Ultra Corrosion Nickel Plated
(manufacturing date: 11/6/2017; color: silver; article number: 7770272765)

Chemical Resistance test

Standards/Guidelines: VDI 2083 Part 17; ISO 4628-1; ISO 2812-1
The norms stated generally refer to the version valid at the time of the tests.

Testing equipment:
- Microscope
- Camera

Test environment parameters:

Temperature: ..... 22 °C ± 0.5 °C

Test procedure parameters:

Immersion method
- Chemicals: ..... Formalin 37 %
  ..... Ammoniac 25 %
  ..... Hydrogen peroxide 35 %
  ..... Sulfuric acid 5 %
  ..... Phosphoric acid 30 %
  ..... Peracetic acid 15 %
  ..... Hydrochloric acid 5 %
  ..... Isopropanol 100 %
  ..... Sodium hydroxide 5 %
  ..... Sodium hypochlorite 5 %
  ..... Acetic acid 10 %
- Incubation time: ..... 1 h, 3 h, 6 h, 24 h

Test result / Classification

The Chemical Resistance of Ultra Corrosion Nickel Plated was classified according to ISO 4628-1 and VDI 2083 Part 17 with the following result:

Chemical Resistance	1 h	3 h	6 h	24 h
Formalin 37 %	0	0	0	**0**
Ammoniac 25 %	0	0	0	**0**
Hydrogen peroxide 35 %	0	2	2	**3**
Sulfuric acid 5 %	0	0	0	**0**
Phosphoric acid 30 %	0	0	0	**0**
Peracetic acid 15 %	1	4	4	**5**
Hydrochloric acid 5 %	0	0	0	**0**
Isopropanol 100 %	0	0	0	**0**
Sodium hydroxide 5 %	0	0	0	**0**
Sodium hypochlorite 5 %	0	0	0	**0**
Acetic acid 10 %	0	0	0	**0**

The classification is based on a worst-case consideration. In the process, damage was assessed according to the classification system used in ISO 4628-1 and VDI 2083 Part 17:

0 = excellent
1 = very good
2 = good
3 = weak
4 = very weak
5 = none

The measuring devices used for the qualification tests are calibrated at regular intervals; their results can be traced back to national and international standards. In cases where no national standards exist, the test procedure implemented complies with the technical regulations and norms applicable at the time of the test. The relevant documentation can be viewed on request at any time.

Detailed information and parameters of the test environment can be found in the Fraunhofer IPA test report.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

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on behalf of
Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA

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