



**Fraunhofer**

**TESTED<sup>®</sup>  
DEVICE**

Kawasaki Robotics GmbH  
Cover Wrist OP  
**Report No. KA 2505-1627**

DUPLICATE

Statement of  
Qualification

Single product  
Chemical Resistance

Customer	Kawasaki Robotics GmbH Im Taubental 32 41468 Neuss Germany
Tested product	
Category:	Materials
Subcategory:	Plastics
Product name:	Cover Wrist OP (Gasket) (manufacturing date: 9/2024; color: black; article number: 60347-0404)

Chemical resistance test

Standards/guidelines:	VDI 2083 Part 17; ISO 2812-1; ISO 4628-1 The norms stated generally refer to the version valid at the time of the tests.
Test equipment:	<ul style="list-style-type: none"><li>Microscope</li><li>Camera</li></ul>
Test environment parameters:	Temperature:.....22 °C ±0.5 °C
Test procedure parameters:	Immersion method <ul style="list-style-type: none"><li>Chemicals:.....Formalin 37 % .....Ammoniac 25 % .....Hydrogen peroxide 30 % .....Sulfuric acid 5 % .....Phosphoric acid 30 % .....Hydrochloric acid 5 % .....Isopropanol 100 % .....Sodium hydroxide 5 % .....Sodium hypochlorite 5 %</li><li>Incubation time: .....1 h, 3 h, 6 h, 24 h</li></ul>

Test result / Classification

The chemical resistance of Cover Wrist OP (Gasket) 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 30 %	0	0	0	0
Sulfuric acid 5 %	0	0	0	0
Phosphoric acid 30 %	0	0	0	0
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

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	3 = weak
1 = very good	4 = very weak
2 = good	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	KA 2505-1627 Report No. first document	Stuttgart, June 6, 2025 Place, date of first document issued
Business unit Testing and Certification	-- Report No. current document	-- Place, current date
Nobelstrasse 12 70569 Stuttgart Germany	on behalf of Dr.-Ing. Frank Bürger, head of business unit Testing and Certification	