



# Fraunhofer

## TESTED<sup>®</sup> DEVICE

KUKA Deutschland GmbH  
LBR iisy 11 R1300 CR  
**Report No. KU 2303-1404**

Statement of  
Qualification

Single product  
Outgassing Behavior  
VOC/SVOC

Statement of Qualification · Single product

Customer	KUKA Deutschland GmbH Zugspitzstrasse 140 86165 Augsburg Germany
Component tested	
Category:	Automation Components
Subcategory:	Robotics
Product name:	LBR iisy 11 R1300 CR (manufacturing date: 1/10/2043; color: white and orange; weight: 46.3kg; serial number: 4561014)
Emission measurements with purge-and-trap thermodesorption method and gas chromatography combined with mass spectrometry (TD-GC/MS)	
Standards/Guidelines:	ISO 14644-8, -15; ISO 16000-6, -9, -11, -25 The norms stated generally refer to the version valid at the time of the tests.
Testing equipment:	Measuring station: ..... Metrohm Proferssional IC 850, Metrohm Professional ..... Sample Processor 858, Metrohm Dosino 800
Test procedure parameters:	<ul style="list-style-type: none"><li>Retention range (VOC): ..... C6 to C16</li><li>Outgassing test temperatures: ..... ~23°C</li><li>Duration of preconditioning: ..... &gt; 24h</li><li>Flow rate purge gas: ..... 3 m³/h</li><li>Flow rate sampling gas: ..... 20l/h</li><li>Duration of sampling: ..... 6h</li><li>Volume of the emission cell: ..... 9.2 m³</li><li>Air change rate: ..... 0.3/h</li><li>Emission cell material: ..... PE foil bag</li></ul>

Test result / Classification

The outgassing behavior of the robot LBR iisy 11 R1300 CR at rest at the stated temperatures was investigated according to ISO 14644-15. Based on the outgassing rates determined for the specific units, the following material classification was made for the corresponding Contaminant Category:

Contaminant Category (x)	SER <sub>u</sub> <sup>1)</sup> 23 °C [g/unit·s]	ISO ACC <sub>e</sub> Class (x) based on 23° C
VOC	7.4 x 10 <sup>-9</sup>	-8.5
SVOC	< 8.3 x 10 <sup>-11</sup>	< -10.1
Amines	< 8.3 x 10 <sup>-11</sup>	--
Organophosphates	< 8.3 x 10 <sup>-11</sup>	--
Siloxanes	2.5 x 10 <sup>-10</sup>	--
Phthalates	< 8.3 x 10 <sup>-11</sup>	--

<sup>1)</sup>SER<sub>u</sub>: Unit-specific emission rate


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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