



**Fraunhofer**  
**TESTED<sup>®</sup>**  
**DEVICE**  
LAPP KOREA LLC  
FD 8711 C MC 7x0.34  
**Report No. LA 2410-1570**

Statement of  
Qualification

Single product  
Outgassing Behavior  
Ammonia

DUPPLICATE

# Statement of Qualification • Single product

## Customer

LAPP KOREA LLC  
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18579 Hwaseong-si, Gyeonggi-do,  
Republic of Korea

## Test result / Classification

The outgassing behavior of the cable system CLEANROOM FD 8711 C MC 7 x 0.34 mm<sup>2</sup> 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:

## Tested product

Category: Energy Supply

Subcategory: Cable Systems

Product name: CLEANROOM FD 8711 C MC 7 x 0.34 mm<sup>2</sup>  
(manufacturing date: 9/9/2024; color: black; serial number: 85133400;  
batch number: E/37; length: 1 m)

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
Ammonia (NH <sub>3</sub> )	< 2.9 x 10 <sup>-9</sup>	< -8.5

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

## Emission chamber measurements with impingement in combination with ion chromatography (IC)

Standards/guidelines:

ISO 14644-8, -15; ISO 16000-6, -9, -11, -25; VDI 2083 Part 17  
The norms stated generally refer to the version valid at the time of the tests.

Test equipment:

• Measuring station:.....Metrohm Professional IC 850

Sample storage:

• Pre-conditioning:  
– Cleanroom Air Cleanliness Class (according to ISO 14644-1):..... ISO 1  
– Airflow velocity:..... 0.45 m/s  
– Airflow type:..... vertical laminar flow  
– Temperature: ..... 22 °C ± 0.5 °C  
– Relative humidity: ..... 45 % ± 5 %  
– Purified air: ..... VOC-filtered

Test procedure parameters:

Outgassing test temperature: ..... 23 °C

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  
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and Micromanufacturing

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

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