

valid until: November 26, 2030

# IPA

Cleanroom (atmospheric)

## Single product Outgassing Behavior Ammonia

# Fraunhofer

TESTED<sup>®</sup>  
DEVICE

Ziehl-Abegg SE  
HF C27021 14 black  
**Report No. ZI 2507-1655**

## Qualification Certificate

This is to certify that the product mentioned above, provided by

**Ziehl-Abegg SE**  
Künzelsau, Germany

has been awarded a Fraunhofer certificate TESTED DEVICE bearing the report number ZI 2507-1655.

The outgassing behavior of HF C27021 14 black (color: black) at the stated temperature was investigated according to ISO 14644-15 and VDI 2083 Part 17. Based on the outgassing rates determined for the specific surfaces, the following material classification was made for the corresponding Contaminant Category:

Contaminant Category (x)	SER <sub>a</sub> <sup>1)</sup> 23 °C [g/m <sup>2</sup> s]	ISO-ACC <sub>m</sub> Class (x)
Ammonia (NH <sub>3</sub> )	< 2.9 x 10 <sup>-9</sup>	< -8.5

<sup>1)</sup>The emission rate is calculated using the detected concentration based on the external standard calibration, the analyzed sample surface area or number of samples, the volume of the impingement solution and the sampling duration.

This document only applies to the named product in its original state and is valid for a period of 5 years from the current date the document was issued. The document can be verified under [www.tested-device.com](http://www.tested-device.com).

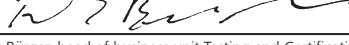
Detailed information and parameters of the test environment can be found in the Fraunhofer IPA test report.

ZI 2005-1156  
Report No. first document

Stuttgart, May 25, 2020  
Place, date of first document issued

ZI 2507-1655  
Report No. current document

Stuttgart, November 26, 2025  
Place, current date

on behalf of   
Dr.-Ing. Frank Bürger, head of business unit Testing and Certification



**Fraunhofer**  
IPA