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TESTED[®] DEVICE

PFENNIG Reinigungstechnik GmbH
Ringo GMP Ultra

Report No. PF 2509-1667

DUPLICATE

Statement of
Qualification

Single product
Riboflavin Test
(Equipment)

Statement of Qualification · Single product

Customer
 PFENNIG Reinigungstechnik GmbH
 Heubachstrasse 1
 87471 Durach
 Germany

Tested product

Category: Working Place and Operator
 Subcategory: Work Equipement
 Product name: Ringo GMP Ultra
 (manufacturing date: 7/22/2025; color: silver/blue; article number: 2000070)

Cleanability test (riboflavin test)

Standards/guidelines: VDMA information sheet »Riboflavin test for low-germ or sterile process technologies – Fluorescence test for examination of cleanability«. The norms stated generally refer to the version valid at the time of the tests.

Test environment parameters: Laboratory

Test procedure parameters:

- Test solution:0.2 g riboflavin, 1 g hydroxethylcellulose
in 1000ml ultrapure water
- Application of test solution:..... pump spray
- Drying time: approx. 2-3 h
- Cleaning method:..... wiping
- Cleaning medium:ultrapure water
- Number of wiping cycles: 3
- UV-light: $\lambda = 366 \text{ nm}$

The cleanability is examined and assessed qualitatively. The assesment based on the amount and size of defects occuring.

Test result / Classification

The examination of cleanability of the flat press Ringo GMP Ultra was investigated according to VDMA information sheet. The following test result could could be provided:

Classification
good
The test piece can be cleaned well using a simple wiping procedure with ultra-pure water. The fluorescence test identified some critical areas. It is extremely difficult to clean these areas effectively. Due to the ability to disassemble and the possibility of disinfection by heat sterilization, cleanability can be assumed to be good

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.

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

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Business unit Testing and Certification

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