



Fraunhofer

**TESTED[®]
DEVICE**

CONTEC INC.
Quiltec I Polyester Mop Head
Report No. CO 1901-1091

DUPLICATE

Statement of
Qualification

Single product
Particle Emission

Statement of Qualification · Single product

Customer	CONTEC INC. 525 Locust Grove 29303 Spartanburg, S.C. United States
Component tested	
Category:	Materials
Subcategory:	Consumables
Product name:	Quiltec I Polyester Mop Head (manufacturing date: 2/1/2018; material: 100 % polyester; color: white; serial number: MHQT0100; size: 39 x 13 cm)

Random sampling of particle emissions (airborne) at representative sites

Standards/Guidelines:	ISO 14644-1; VDI 2083 Part 9.2, without 24-hour running-in period The norms stated generally refer to the version valid at the time of the tests.
Test devices:	Optical particle counter: LasAir II 110 with measuring ranges $\geq 0.1 \mu\text{m}$, $\geq 0.2 \mu\text{m}$, $\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$, $\geq 1.0 \mu\text{m}$ and $\geq 5.0 \mu\text{m}$
Test environment parameters:	<ul style="list-style-type: none">Cleanroom Air Cleanliness Class (according to ISO 14644-1):..... ISO 1Airflow velocity:..... 0.45 m/sAirflow pattern:..... vertical laminar flowTemperature: $22^\circ\text{C} \pm 0.5^\circ\text{C}$Relative humidity: $45\% \pm 5\%$
Test procedure parameters:	Test bench (according to ISO 9073-10): <ul style="list-style-type: none">Sample clamping position:..... flatLength between clamping points: l = 230 mmMotion cycle:<ul style="list-style-type: none">Linear compression s:..... 120 mmTorsion: 180°Cycle time t: 1 sSampling chamber:..... noneDuration of stress applied to test piece: 100 minDistance between particle counting probe and test piece:..... 30 mm

Test result / Classification

When operated under the specified test conditions, the Quiltec I Polyester Mop Head is under dry conditions suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Class according to ISO 14644-1:

Test parameter(s)	Air Cleanlines Class
Linear compression = 120 mm Torsion = 180° Cycle time t = 1 s	5
Overall result	5

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	CO 1901-1091 Report No. first document	Stuttgart, February 18, 2019 Place, date of first document issued
Department of Ultraclean Technology and Micromanufacturing	-- Report No. current document	-- Place, current date
Nobelstrasse 12 70569 Stuttgart Germany	on behalf of Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA	