

DCI Microscopy

Cleanliness Assessment Calibration and Reference Slide

DCI's NIST-Traceable certified calibration and reference slide is aimed at the validation of measurements performed by image analysis instruments for ISO 16232, VDA 19 and other cleanliness assessment method on 47 mm membrane or paper filters. This slide may also be used to validate particle size and shape analysis for objects between 10 and 1000 μm .

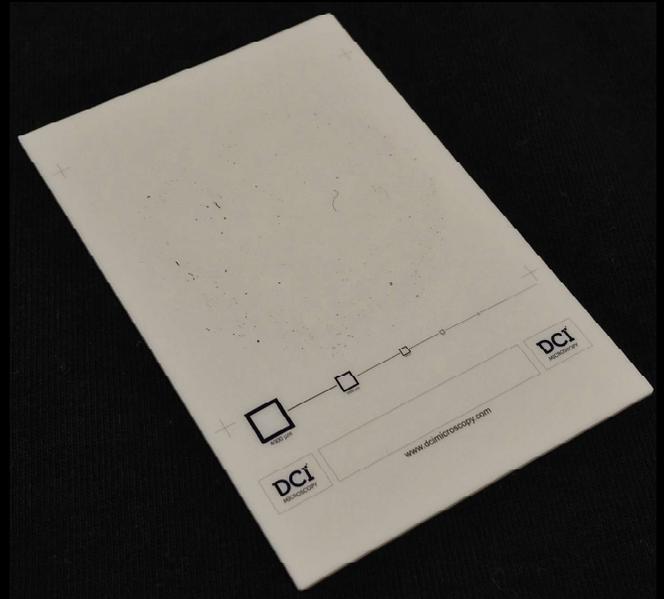
The slide was designed to faithfully replicate a typical filter, in color, reflectance, and particles (contaminants) appearance. More than 8000 particles of various sizes are evenly distributed on the slide, allowing a statistically relevant reproduction.

For the first time, it is now possible to ascertain that a static image analysis system is actually counting and measuring every particles on a filter.

Main Features:

Our 75mm x 50mm x 1mm white media slide has a very similar reflectance to 47mm Paper Filters.

This means that using the reference slide will require little to no camera parameters or detection threshold adjustments, reducing the risk of errors due to manipulation.



More than 8 000 particles of various sizes are evenly distributed on the slide, allowing a statistically relevant reproduction.

The particles on our calibration-slide were randomly generated to provide a very wide range of shapes and sizes. This ensures that the detection of every type of particles is validated.

Particles measurements include:

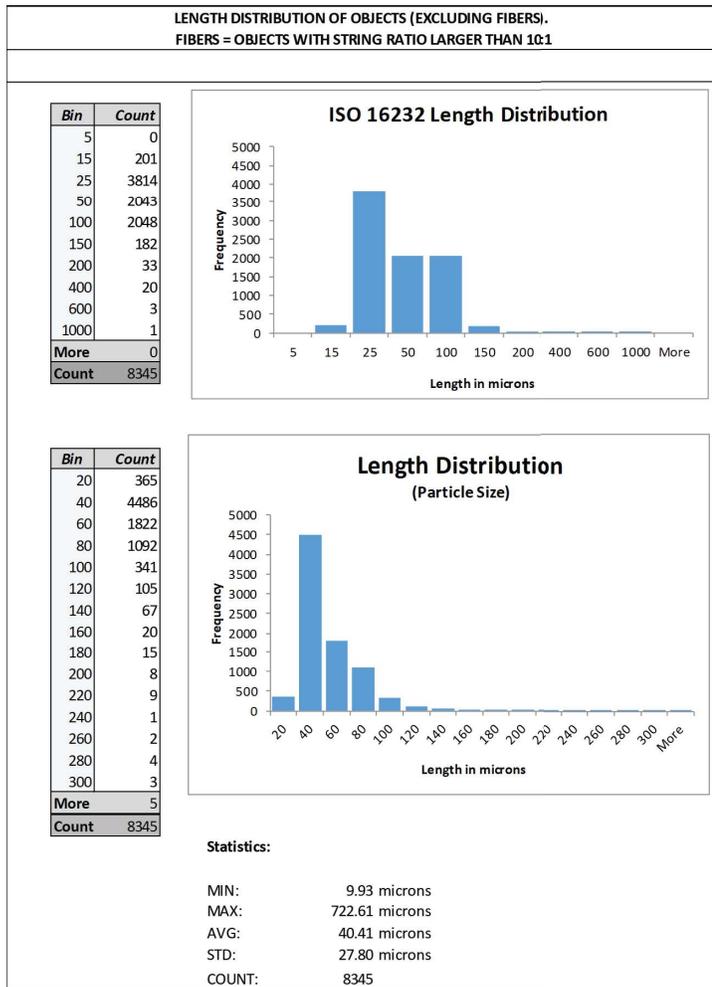
- Area,
- Length,
- String Ratio (Fibers Elongation Ratio independently of "Boxed " Length and Width),
- Roundness (Based on Circle Equivalent Diameter).

Note: Length only is certified

Special particles:

- Metallic-like particles (shiny center)
- Many fiber-like particles, including one over 3000 μm in length

Measurements:



Each certified slide includes two analysis Reports:

- A digital report (on a USB key)
- A printed report.

The Printed analysis report includes:

Mosaic image of full Filter made of 400 camera images.

Two histograms, one for Length distribution as per ISO 16232, and one representing a Linear Length distribution of 10 to 300 microns in 20 bins.

Basic statistics for the 8,000 + particles.

Table of calibration rectangles values.

Image and measurement of Longest Fiber.

The Digital analysis report includes:

Everything found on the printed report plus:

Measurement data of every (8,000+) particles found on the slide, including their individual XY coordinates.

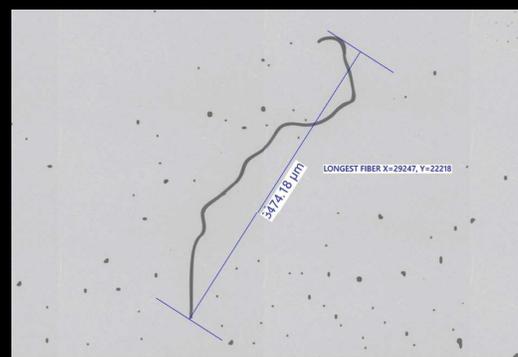
Mosaic Tiff image at full resolution of measured filter scan, made of 400 2.3 Mp Camera images.

Individual images of the 400 scanned fields.

Images of the longest fiber, longest particle, largest metallic and largest "round" particle, along with their measurements.

The images of the following objects, along with their measurements, are supplied with the report:

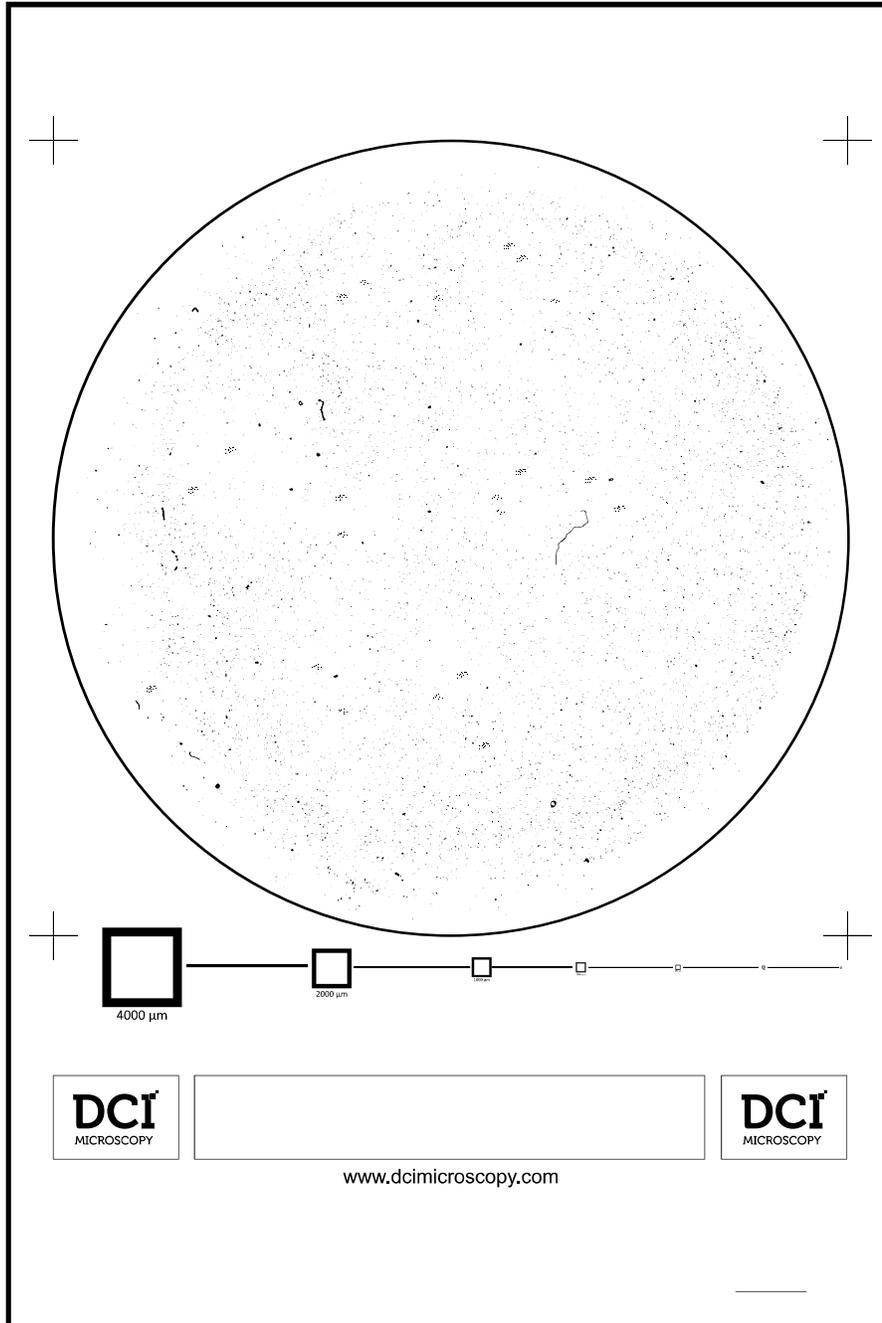
- Longest fiber (String Ratio > 10:1, image shown)
- Longest metallic particle (With high reflectance detected at the center)
- Longest particle (String Ratio < 10:1)
- Longest Round particle (based on equivalent circle area ratio)



Calibration features:

In addition to the particles, the reference slide also includes calibration rectangles that allow calibration of microscope objectives from 50x to 1000x magnification. 5 calibration rectangles are on the slide:

4000, 2000, 1000, 500, 250, 100, 50 μm .



Reference slide blueprint

Download a sample report to see all the features at www.dcimicroscopy.com !