dhs Cleanalyzer

Solutions for the standard-compliant Cleanliness Analysis

High-quality optical components, modern camera systems and professional image analysis –
for precise and user friendly evaluation of filters

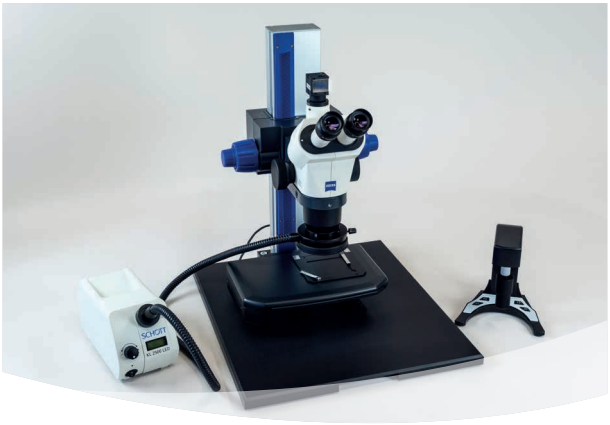
dhs

www.dhssolution.com

DHS-CLEANALYZER®

Stemi

Device with simple operation and automatic sequences. Standard-compliant measurement to particle sizes as low as 25 µm. Incl. Zeiss stereomicroscope, Märzhäuser control technology and high-resolution dhs-MicroCam®.



Scan

High-quality flatbed scanner in combination with the cleanliness analysis software from dhs – including anodized aluminium plate with matching section to insert the slide frames. Use of the aluminium plate offers optimised distance between the slide frame and scanning unit of the scanner and hence improved image focus (visibility of the particle contours).

For evaluating particles from 25 µm.

Inexpensive entry-level system that can be easily upgraded later with other optical components (from the „Stemi“ or „Professional“ models).

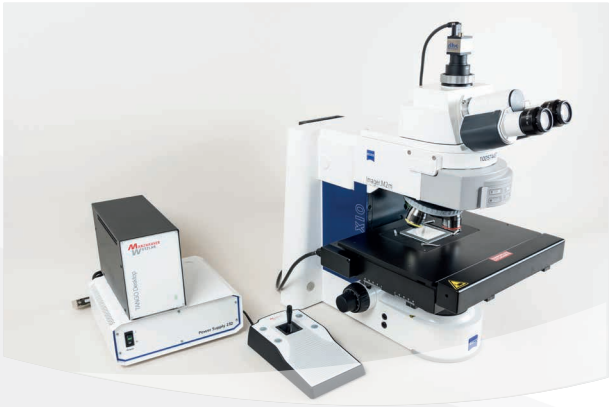
Professional

Fully automatic system with zoom optics (for 5µm and 15µm) and fixed optics (for 35µm) for higher volume of samples. With motorised Z axis and autofocus in the 5µm variant. Stable design with granite slab, aluminium profile column and adjustable LED lighting.

Configured example system for Cleanliness Analysis

Fully automatic system consisting of: ZEISS microscope AxioImager, cross table with motorized x-/y-axis, tango-steering, adjustable LED lightning and dhs-MicroCam® 2213.

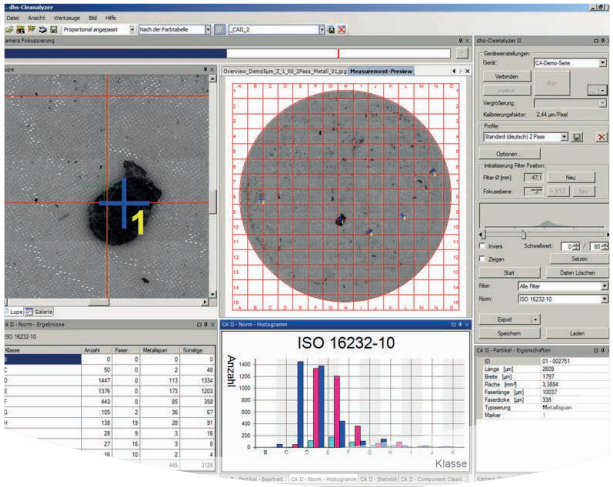
- Standard-compliant analyses to **particle sizes as low as 5µm**
- High-quality microscope suitable **for varied** standard-complient and **analytical settings of tasks** (e.g. steel inclusions) - **upgradeable with all dhs-software-moduls**, according to the application



Cleanliness Analysis Software

Intuitively operated analysis software, standard for all dhs-Cleanalyzer variants **(English / German)**. **Easy to learn operating routines** arranged in logical sequences, detailed measured value presentation in tables and diagrams. Comprehensive **preclassifiers** can be **adjusted**

- Calculation of the standardised fibre criterion (devel oped length / maximum inscribed circle)
- Calculation of the coverage density as a percentage
- Option of combining incorrectly separated particles through erosion/dilation (useful for devices without polarisation)



- Determination of colour features for further characterisation of residual contaminants
- Clone assistant – tool for automated reproducible microscopy (option of recreating measuring conditions/ device settings)
- Support for multi-filter analysis (fully automated analysis of multiple filters within a measuring cycle)
- Supports different filter shapes (circular, rectangular)
- Visualisation of all particles by means of a gallery view

Features

- Systems especially developed for Cleanliness Analysis for different requirements and budgets
- Supports all current national and international standards, such as **VDA Vol. 19, EN ISO 16232, EN ISO 4406, SAE AS4059 etc.**
- Users can integrate more standards with very little effort (= cost saving)
- Standard-compliant **measurements to particle sizes as low as 5µm (= optical resolution 0.5µm)**
- Simple operation with automatic sequences in managed routines, quick and flexible (= easy to learn)
- **Short throughput times**, with automatic systems without tying up employees
- Use of extremely precise measuring optics and high-resolution digital cameras
- Complete systems, **freely configureable**
- Adaption of already available microscopes for Cleanliness Analysis
- **Evaluations** can always be **followed live** = immediate control of the results, you can go directly to particles that are detected and cancel the evaluation in case of outliers
- No maximum particle size
- **Determination of** geometric and reflection parameters to specify **particles**, such as **metallic /non-metallic, fibres, etc.**
- **Z measurement** (determining the particle height)
- Results are presented in tables and diagrams
- System and measuring parameters are saved for reproducible analysis results
- dhs Particle standard with unique quality, incl. DKD-certification if required
- Direct connection to high-quality imaging package **dhs Image Data Base** (= structured long-term archiving and generation of reports at the press of a button)
- Project-related **trend analyses with long-term evaluations** possible
- Calculating the **Illig value for analysing particle traps**

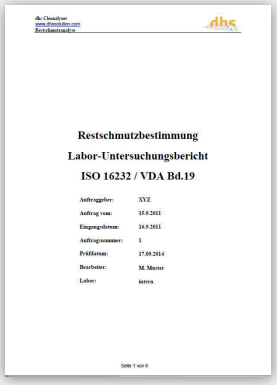
Base set for cleaning and extraction of components

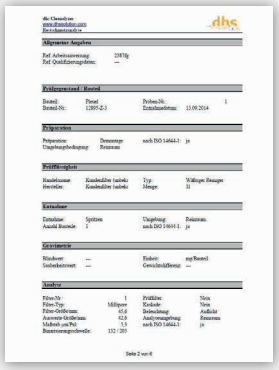
Basic equipment to the cleaning and extraction of components to VDA Bd. 19. Optionally ultrasonic trays and drying devices are offered, according to component size. We like to advice you individually.

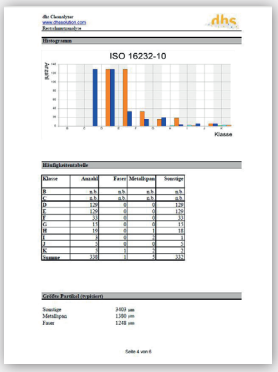
Adequate reports at the end of the workflow

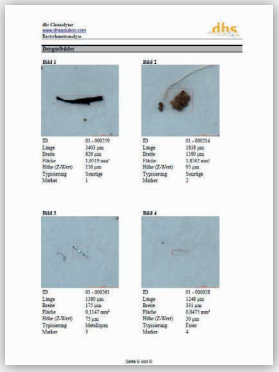
All **data,** images, analysis values and statistics **can be exported** to the **dhs Image Data Base** with **a mouse click** for **long-term archiving** and for **reporting.**
Our dhs-Service contract includes annual equipment maintenance and calibration as well as software-updates!

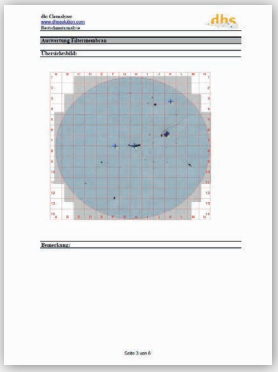
Example report with dhs Image Data base


Restschmutzbestimmung
Labor-Untersuchungsbericht
ISO 16232 / VDA Bd.19




ISO 16232-10





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