

## Activated Carbon

### Detection of fine particles with the CAMSIZER

Activated Carbon is used as filter material in various industrial areas where it binds e.g. gas, bacteria or odours. In the automobile industry for example, activated carbon filters are used to prevent the evaporation of gasoline fumes into the environment by hydrocarbon adsorption. Particle shape and size distribution of the material have a crucial impact on the filter characteristics. The CAMSIZER provides reliable information on both of them and is therefore an ideal instrument for quality and production control.



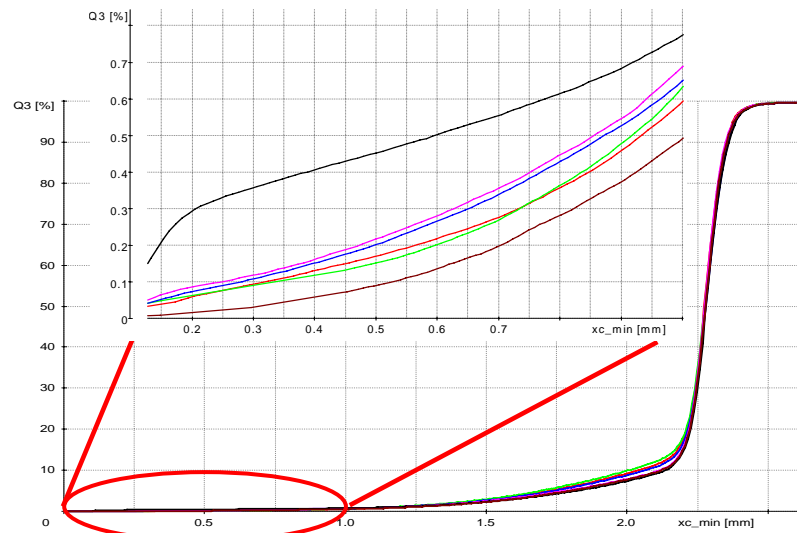
#### What is Activated Carbon?



A lot of materials with a carbon content of > 90% can act as basic material. The inner structure of activated carbon consists of large pores which are generated during the production process. The pores are able to adsorb different kinds of substances and filter these from diverse media. Activated carbon is available in different specifications/forms – e.g. as powder, granules or extrudates.

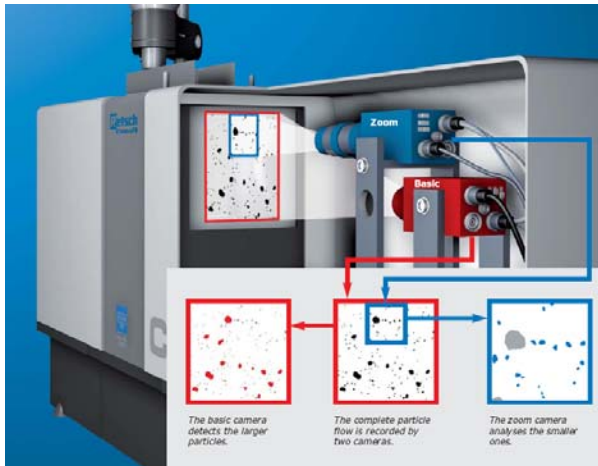
#### Quality Assurance

Particle size analysis has to focus especially on the amount of fine particles since they can clog/block the filter and damage it. As shown in the example, the CAMSIZER is able to **detect even very small amounts (below 0.1%) of fine particles**. Of six samples of filter material which have been measured, five range within the allowed tolerance and one shows an increased amount of fine particles (black curve). Despite large sample volumes of up to 1 kg the measuring time was only about 10 minutes per sample. An extensive sample division like for sieve analysis is not necessary. Furthermore, the material is not destroyed, which is very well possible during sieve analysis. Also dust emission and workload are considerably lower.



### Benefits at a glance

- No-contact, non-destructive measurement
- Reproducible results, high resolution
- Identical results at different sites
- Short measuring times
- Easy to use, maintenance-free
- Suitable for laboratory and production environments
- Automated display of results in clearly arranged measurement protocol



The patented measuring setup of the CAMSIZER – two digital cameras as an adaptive measuring unit – improves and optimises particle analysis by digital image processing. Therefore, it is possible to measure a wide range of particles from 30  $\mu\text{m}$  to 30 mm with extreme accuracy, **without having to switch measuring ranges or make adjustments**. The sample is fed in from the feed channel so that all particles fall through the measurement field. During the measurement procedure the two digital cameras (CCD) perform different tasks. The basic camera (CCD-B) records large

particles, the zoom camera (CCD-Z) records the small ones. The contact-free optical measurement is carried out in real time and simultaneously obtains all the required information about particle size and particle shape. A modularly configurable online version of the instrument has been developed to allow automated measurements to be conducted continuously.

For further information please visit our website [www.retsch-technology.com](http://www.retsch-technology.com) or contact us personally:

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