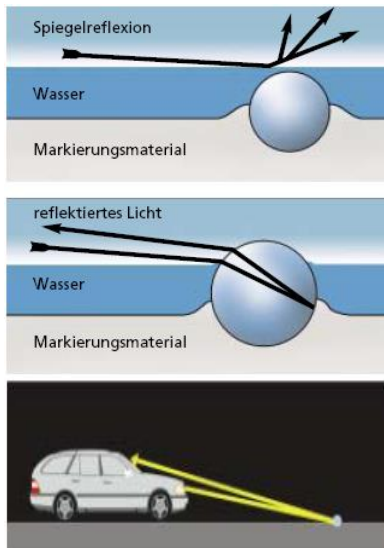


Glass beads for road markings Particle shape analysis for better light reflection

Glass beads are used in a wide variety of applications, e.g. as reflective paints for road signs and road markings. They are made from new or recycled crushed glass (cullet). The size distribution of these beads ranges from 50 µm to approx. 2 – 3 mm. Due to the imprecise manufacturing process, which also produces non-round beads, it is important to control the process and the quality of the finished product.



Today's road markings offer significantly improved nighttime visibility through the use of glass beads embedded in the paint. The light from the vehicles' headlights is reflected back to the driver from the glass beads in the paint, so that the markings appear illuminated (see right side picture).

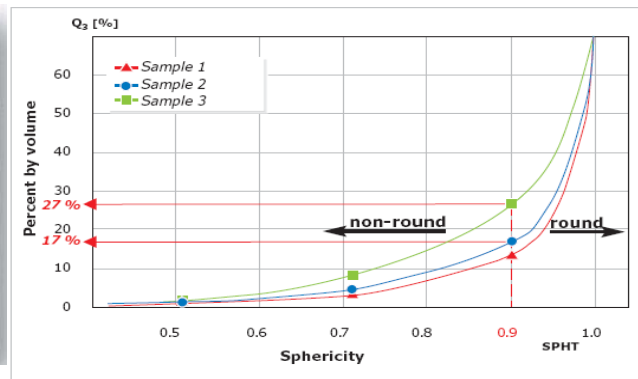
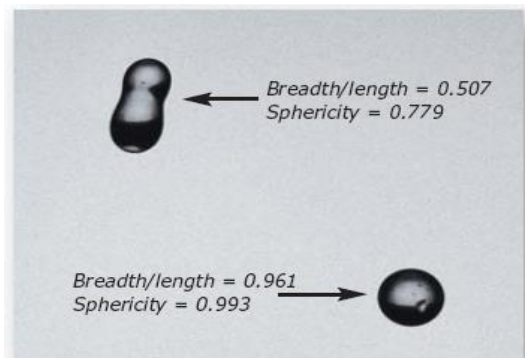


During application, glass beads are already embedded in the paint and are also dropped into wet paint directly behind the paint sprayer. The light entering the glass bead is bent, focused toward the back of the bead, and then reflected back towards the driver.

Aside from the issue of paint quality and application density, the quality of the glass beads have a significant impact on retro-reflectivity performance. The glass beads should be round and clear, with little scatter or filtering. The larger and more perfectly round the bead, the more light is reflected back to its source, providing visibility of the marking in low-light conditions.

Quality control

Glass bead producers need quality control for production and for outgoing products. The most crucial attribute for the quality of glass beads is the shape (in this case roundness) of the material. This is often done by visual control of counted beads or with the help of microscopes. Both alternatives are highly time-

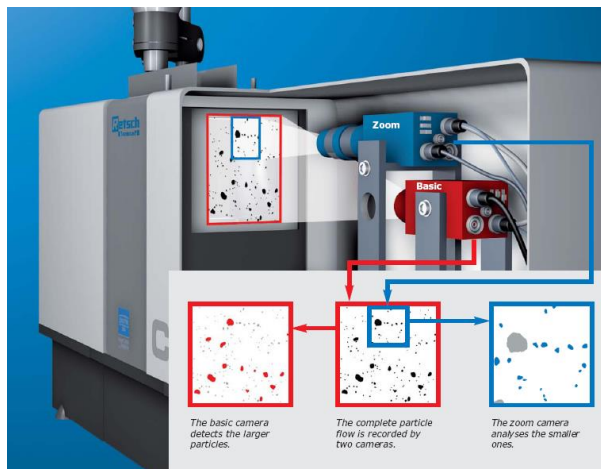


consuming and not reliable. The CAMSIZER can measure the sphericity of glass beads thus improving the results and quantity of the performed quality control.

Benefits at a glance

- Reproducible and reliable results
- The fast measurement allows the user to take corrective actions if the glass beads do not meet the necessary requirements
- Results are comparable to sieve analysis
- High resolution and a wide measuring range

Measuring Principle



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 μm 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.

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