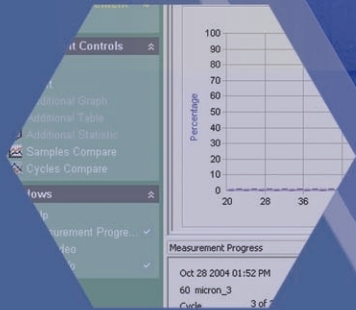
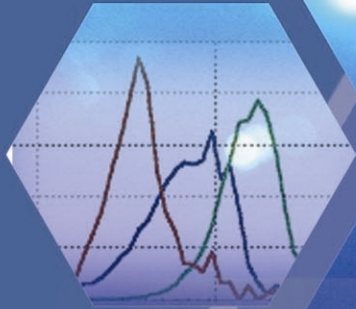
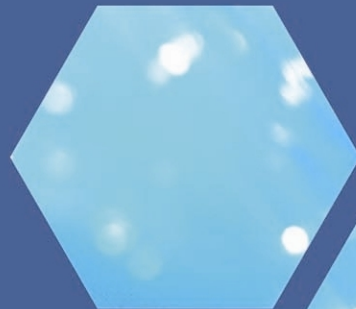
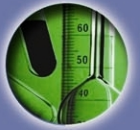
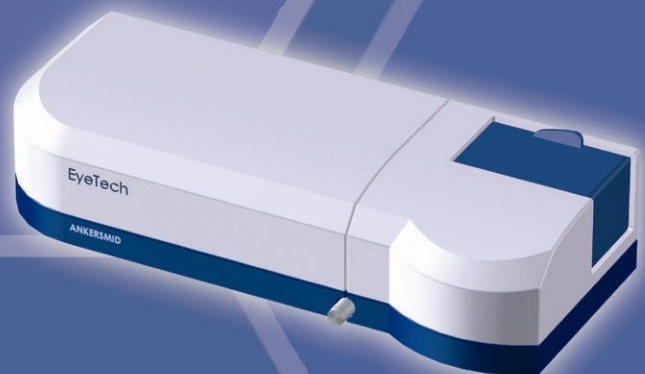


EyeTech

Particle Size Analysis
Dynamic Image Analysis
Concentration Measurement



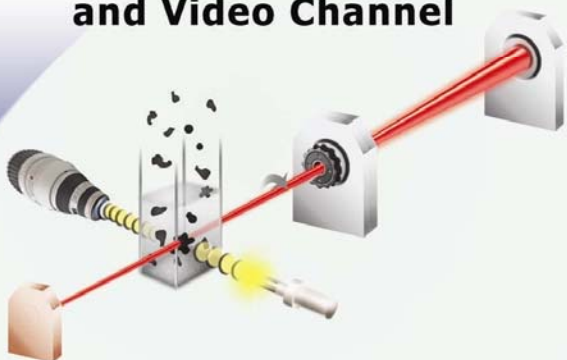
BEYOND PARTICLE SIZE



ANKERSMID

BEYOND PARTICLE SIZE

Combined Laser and Video Channel



- Unique combination of technologies based on Laser Obscuration Time and sophisticated Dynamic Shape Analysis.
- Accurate analysis and characterisation of spherical, non-spherical and elongated particles.
- Simultaneous results of Particle Size, Concentration and Shape.
- Modular design for a range of dry and wet applications.
- Real-time visualisation of the sample during operation

EyeTech Concept:

- Best of both worlds:
- Fast and accurate Particle Size Analysis with the unique Laser Obscuration Time technique.
- Accurate description of non spherical materials with sophisticated Dynamic Image Analysis.
- The measurement relates solely and directly to the particle size
- Results are independent of physical or optical properties of the particles or medium

EyeTech



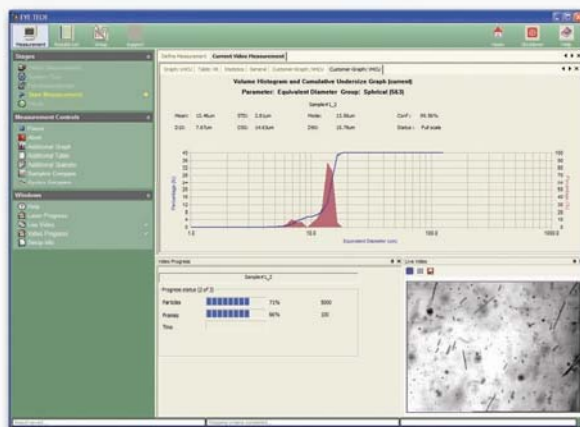
The Ultimate Particle Analyser!

Modular Design

Professional User Interface

Advanced Data Output:

- Automated custom report generation
- Customized real-time graphs and tables
- Reprocessing of stored images
- Multiple user levels
- Setup Wizard for easy start-up
- 21 CFR Part 11 compliant



Ankersmid Measurement Cells

Magnetic Stirring
ACM-101

Fiber Cell
ACM-104L

Free Fall
ACM-112

Liquid Flow(10mm)
ACM-104A

Liquid Flow (4mm)
ACM-104

Slide Cell
ACM-110

Heated Cell
ACM-111

Mechanical Stirring
ACM-102

Aerosol Flow
ACM-106

Micro Flow
ACM-108

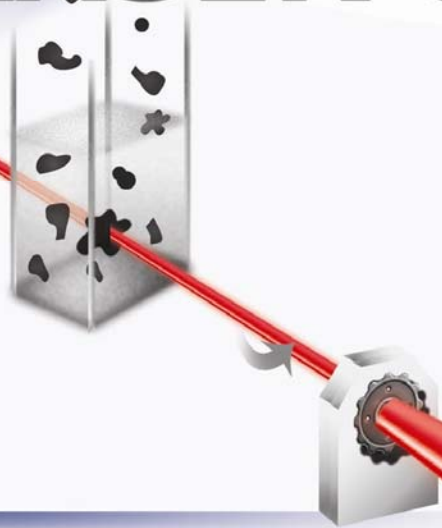
Sample Presentation:

- LIQUID
- DRY
- SURFACE

A range of accessories is available to adapt the EyeTech to any application. The materials are analysed closest to their original state, rather than adapting the nature of the sample to the instrument.

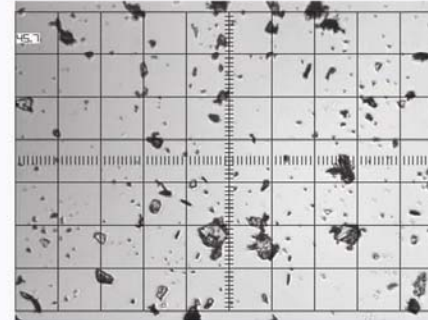
 ANKERSMID

LASER OBSCURATION TIME

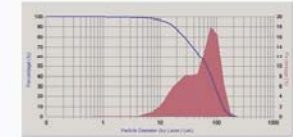


The EyeTech uses a unique time domain measurement called LOT. A rotating laser beam scans individual particles in the sample zone. As the particles are encountered, the laser beam is obscured and interaction signals are generated. These interaction signals are detected by a photodiode. Since the laser beam rotates with a constant speed, the duration of the obscuration provides a direct size measurement of each particle.

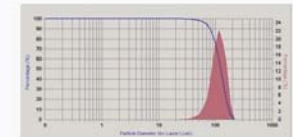
Multiple Parameters Data Display



Sample Image



Number Size Distribution

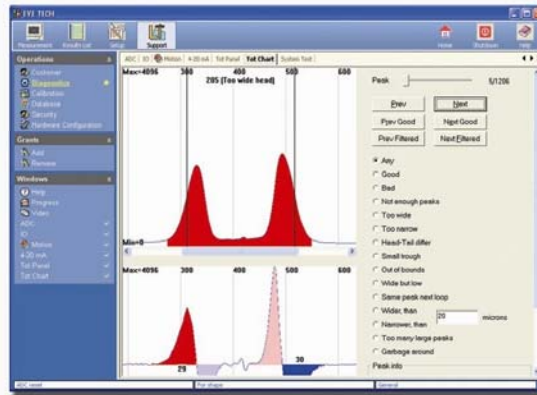


Volume Size Distribution

Measurement of Single Particles

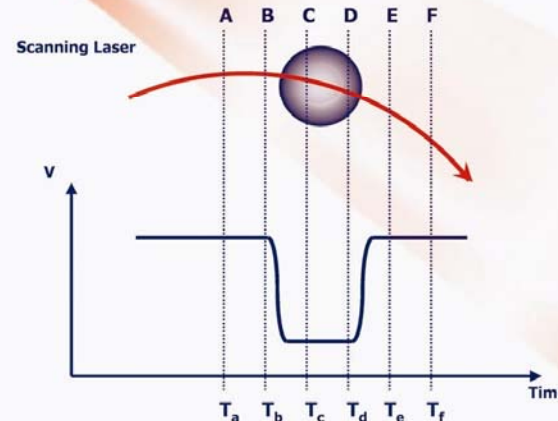
To measure particle size distribution accurately, the EyeTech records on-center and in-focus interactions only. This is achieved by filtering the shape of the Pulse Profile via sophisticated algorithms. When a particle is hit by the laser beam straight on, the slope of the Pulse Profile approaches an angle of 90 degrees, resulting in short pulse transitions. In off-center or out-of-focus hits, the angle between the laser path and the particle boundary is significantly less than 90 degrees. Consequently, the rise and fall times of these interactions are longer and the derivative signals of the pulse transition are wider and have smaller amplitude and can therefore be easily discarded. One benefit of the Laser Obscuration Time principle is that there is no assumption of particle's sphericity. Furthermore, the distance between the edges of a particle regardless of the shape of the particle outside the laser trajectory is measured.

Sophisticated Analysis Algorithms



Single Particle Sizing

Laser Obscuration Particle Interaction

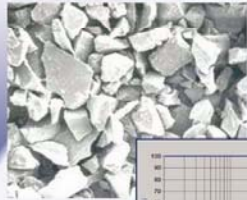


Concentration Measurement

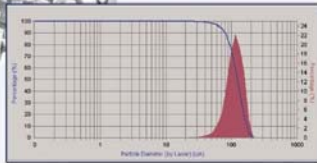
- Data is collected on single particles
- Direct measurement of true particle size
- Wide range with high resolution
- Independent of optical or other properties
- Particle size and concentration measurement
- No need for alignment or calibration
- Broad concentration range. Higher but also lower concentrations than laser diffraction and electrical zone sensing technologies.

DYNAMIC IMAGE ANALYSIS

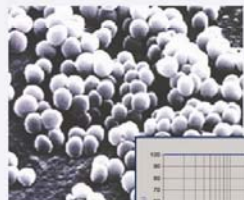
Why shape analysis?



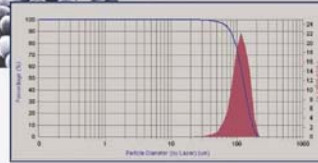
Non-Spherical Particles



Equivalent Maximum Diameter

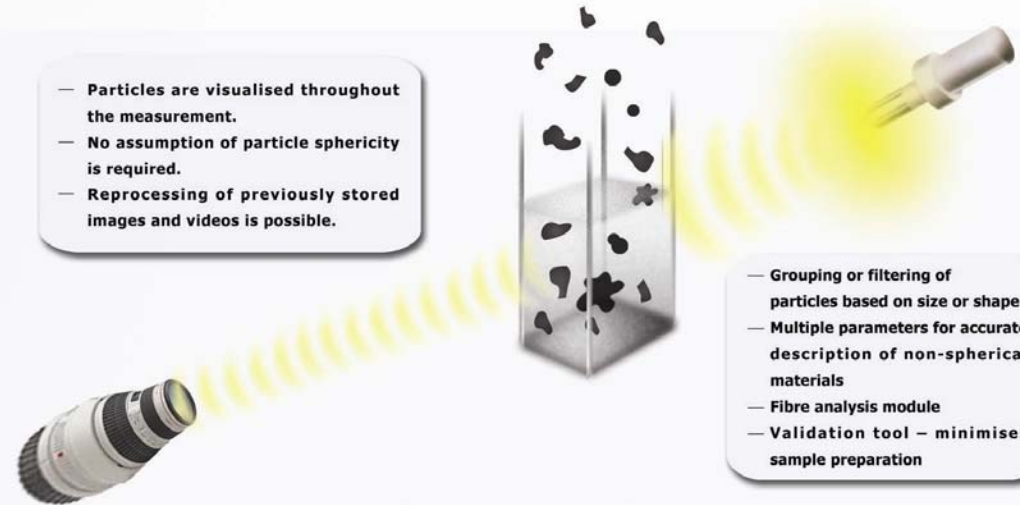


Spherical Particles



Equivalent Maximum Diameter

- Particles are visualised throughout the measurement.
- No assumption of particle sphericity is required.
- Reprocessing of previously stored images and videos is possible.



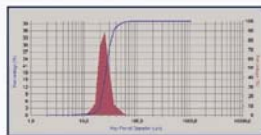
- Grouping or filtering of particles based on size or shape
- Multiple parameters for accurate description of non-spherical materials
- Fibre analysis module
- Validation tool – minimises sample preparation

The New Age of Image Analysis

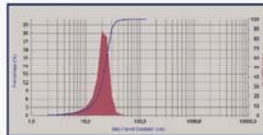
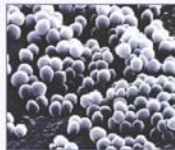
Seeing is Believing!

You Need More Information

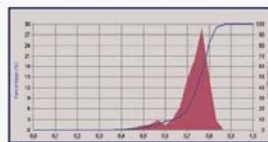
For accurate characterisation of non-spherical particles, two-dimensional shape information is essential. Differences in shape may not be reflected in the particle size distribution. Dynamic Image Analysis uses digital video microscopy to capture optimal particle images for processing. Acquired images are processed using sophisticated image analysis procedures and/or are stored for later processing.



Maximum Diameter
Spherical Particles



Maximum Diameter
Non-Spherical Particles

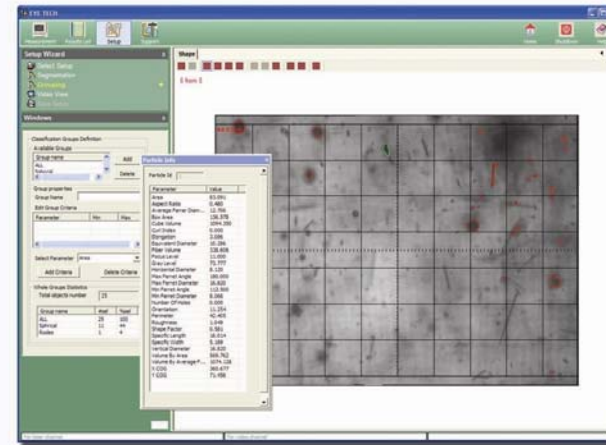


Shape Factor
Spherical Particles

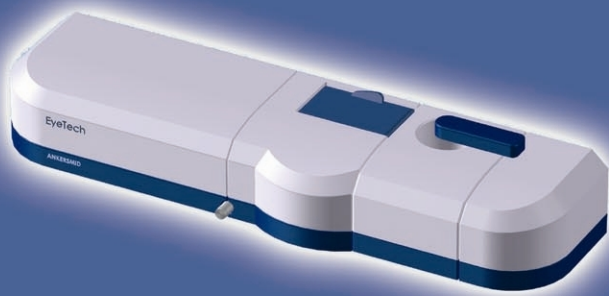


Shape Factor
Non-Spherical Particles

Who Ever Thought That in One Click You Can...



- Microscopic precision in a dynamic system
- Storage of real raw data
- Powerfull pre-processing tools for high quality image analysis
- Accuracy for non-spherical particles
- Over 40 ISO compliant shape parameters offered
- User defined parameters available



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Sample Applications

Geology

Soil, clay, sand, kaolin.

Environmental

Ocean water, tap water, waste water, dust, membrane filtration, flocculation.

Pharma / Bio-tech

Powders, suspensions, syrups, emulsions, pastes, microcarriers, injectable solutions, collagen, microcapsules, drug powders.

Chemicals

Pesticides, dispersants, catalysts, resins, emulsions, preservatives.

Ceramics and Metals

Alumina, silica, magnetic powders, tungsten, sintered products, stainless steel, strontium, cobalt.

Energy

Coal, fuels, slurries, shale-oil emulsions, fly ash.

Food Products

Emulsions, fine powders, beer, coffee, chocolate, ground products, agglomerated crystals, flour, peanut butter, cornflakes.

Heavy Industry

Polymers, oil droplets, wear particles, chalk, fillers, toners, pulp & paper, coatings, pigments, PVC, paint.

Life Science

Bacteria, smears, yeast, inhalation toxicology, cell research, algae growth, blood analysis.

Specifications

Measured parameters

Particle size range

Concentration range

Particle presentation phases

System dimensions & weight

Electricity

Laser

Laser resolution

Illumination

Video camera

Software

ISO Compliancy

Modular measurement cells

Accessories

Particle size, shape and concentration

0.1-3600 μm

Up to 10^9 particles/cc (for 1μ particles)

Liquid borne, airborne, on a surface

665L x 280W x 183H (mm); 14 Kg.

100-130V, 205-240V, 50/60Hz, 100VA

Photodiode Detector

0.33% of full scale, up to 0.2 μm

Synchronized strobe light, adjustable

intensity & duration, flash rate up to 30

frames/ second

High resolution B&W CCD camera, NTSC

640x840 pixels, PAL 768x572 pixels

Windows XP operating system, automatic

reporting, FDA 21 CFR 11 compliant

Compliant to numerous ISO-methods

Liquids, emulsions & opaque liquids, dry

powders, fibers, magnetic particles,

heated liquids, and aerosols

Automatic liquid flow controller, powder

dispenser, powder feeder, temperature

controller, aerosol controller

EyeTech Model:	Size Analysis	Concentration	Vision	DIA	Freedom of Algorithms
Laser	✓	✓			
Vision	✓	✓	✓		
Comb	✓	✓	✓	✓	
Research	✓	✓	✓	✓	✓
Microscopy			✓	✓	
Fiber			✓	✓	

Over 2000 installations worldwide!

Including world renowned clients such as Roche, Johnson & Johnson, Boehringer Ingelheim, NIST, TEVA, Procter & Gamble, GE, NEXIA, Shell, Texaco, Fraunhofer Institute, TU Delft, RU Gent, Queen Mary College, IIT Delhi

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