

Flokalglobe® particle size analysis!

Issue 15-November 2003

We are ISO 9001: 2000 certified



Flokalglobe® particle size analysis!

- ✓ Importance of particle analysis.
- ✓ Flokalglobe particle size analysis products and services.

**We invite you into the world of our services!
E-newsletter free subscription**

CONTACT US

The Netherlands
Tel. + (31).486.41.6240
Fax. + (31).486.41.4514

FLOKAL B.V.

Dorpenweg 27 5371 KS Deursen.

The Netherlands.

www.flokalglobe.com

info@flokalglobe.com

ABOUT US

FLOKAL® - the ultimate resource for:

- ✓ **MFC's** accessories - **Valves & Accessories** - **Gas-systems & Accessories;**
- ✓ **Thermo-elements** (spike and profile)
- ✓ Gas/Liquid Filtration and Purification & Accessories
- ✓ **Vacuum** measure and control devices

Importance of particle analysis

Particle size analysis is an important tool in determining the reactivity, flow characteristics, fusing qualities, shrinkage of ceramics, or many other formulation characteristics of just about every industry.



Particle size analysis is performed by Flokalglobe, using the most up-to-date particle size analyzers. Particle size analysis by laser light scattering is by far the most utilized method. Particle size analysis via laser light scattering can analyze complex organic pharmaceutical compounds, since the instrument pumps the sample through a cell, scanning millions of particles, looking at all aspect ratios.

Simple particle size parameters (e.g. "size") can be misleading, whereby the sample is viewed in the context of spheres of a relatively homogeneous material, e.g. well-rounded sand grains. For many natural sediments this is the exception rather than the rule and can lead to a dangerously oversimplistic presentation of the data with inappropriate environmental interpretations. For example, if you have a sediment consisting of book-shape (e.g. mica flakes) particles, there isn't really a single number that can accurately describe the size of the material since the three axes of the grains can all vary. The various particle "size" analytical methods (both ones we use, and ones we don't)



measure different physical parameters (e.g. settling rate, density, linear measurements, volume), and all make some assumptions as to how the parameters relate to spherical equivalents. With non-spherical materials each method introduces its own error and bias depending upon the parameters being measured.

The properties of certain products are dependent on the dimension or the surface of the particles that they are composed of. The choice of instrument (or combination of equipment) should take into consideration the following criteria:

- Foremost is the measuring range required (minimum and maximum size of particle);
- Precision required (determines method of analysis);
- Quantity of sample to be analysed;
- Time of analysis (number of samples to be analysed daily);
- Media in which sample can be analysed (dry or in liquid).

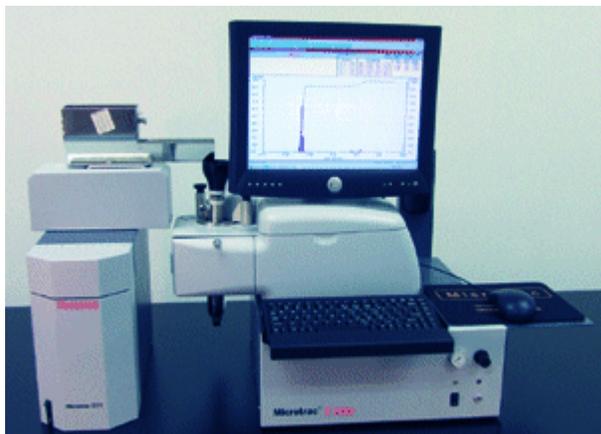
Flokalglobe offers complete service and products for particle analysis.

We offer complete systems for your particle analysis process building! Call our specialists today and we will find the best suitable decision for you. We focus on product and service excellence!

Flokal offer variety of complete particle analysis and measurement systems. Amongst them:

■ **The S3500 & SDC Analyzer**

The S3500 series is the industry's first modular upgradeable designed particle size analyzer. What this revolutionary modular design now provides - FOR THE FIRST TIME - is the ability to expand and upgrade your particle size analyzer without replacing the entire system. So now, as your needs grow and change, your analyzer can grow and change with you faster and more economically.



Particle Size Range: 0.02 to 2816 microns
(ALL IN ONE MEASUREMENT WITHOUT CHANGING A LENS OR CELL)

Wet or Dry Measurements

Modular System allows future system upgrades in a matter of minutes.

Patented Tri-laser technology provides accurate, reliable, and repeatable test results in seconds.

Rapid changeover from wet to dry measurements takes a few minutes.

More powerful optical technology greatly extends the range of measurement.

User friendly equipment and software.

Designed for long-term operation with minimal maintenance.

Outstanding technical and customer support.

Worldwide distribution and service network.

■ **NanoTrac® Range: 0.8 to 6500 Nanometers**

Phase: Wet Measurements - High Concentrations Possible

Measurement Technique: DLS (Dynamic Light Scattering)

Dynamic Light Scattering with Patented CRM® 'Controlled Reference Method'

Optics: Sapphire Glass tipped single laser waveguide.



FEATURES:

Accepts Vials, Cuvettes, Beakers (or) with Built-In CELL for "Mix & Run" in place;

Focus Free Measurements;

Versatile FLEX® Software;

Wide sample concentration range;

Wide carrier fluid/solvent selections (External 1/4 ID";

Ports for connection to constant temperature bath);

In-line "External Probe" Process Control option;

Short analysis time, as fast as 15 Seconds typical;

DATA results stored in Database file format.

■ **CIS-50** is the most cost effective Particle Size Analyzer in the market for range 0.5-1200 micron.



This modular system offers versatile cells for Wet, Dry, Emulsion and Fiber length measurements, for a large variety of materials, applications and industries. Interchangeable cell modules allow for optimal flexibility in sample preparation and measurement phase. Automatic alignment test, calibration free system.

The CIS-50 uniquely combines two independent measuring channels:

The Laser Channel for physical measurement and particle size analysis employing the Time of Transition (T.O.T) Theory.

The video channel for Visualization and Dynamic Shape Characterization employing Image Analysis techniques with parameters such as Aspect Ratio, Shape Factor, Ferret Diameters, Specific Length, etc.

Together, both channels provide all the necessary information to analyze and characterize spherical, non spherical and elongated particles, with high resolution, accuracy and repeatability.

CIS-50 has three models with upgrading potential:

CIS-50L: Laser Channel? Physical measurement and particle size analysis employing the Time of Transition (T.O.T.) Theory.

CIS-50V: Laser Channel and Video Channel for Visualization? A CCD camera with microscopic lens is added to the system enabling to see the particles while being measured. The perfect tool to control, monitor and verify the measuring process.

CIS-50S: Laser and Video Channels with Dynamic Shape Analysis Software? Dynamic shape Characterization employing Image Analysis techniques with parameters such as Aspect Ratio, Shape Factor, Ferret Diameters, Specific length, ect.

The CIS-50, a compact and low cost system, is the optimal particle size analyzer for Research & Development Laboratories and Quality Control Laboratories in a large number of fields and industries.

Applications: Polymers; Emulsions; Powders; Bacteria & Algae; Fibers; Metals; Magnetics; Minerals; Cement; Sand.

Industries: Food; Chemicals; Mines; Pharmaceuticals; Pulp & Paper; Cosmetics; Metals; Environments; Bio-Technology;

Description

A computerized system for Particle Size Analysis (PSA) and Dynamic Shape Characterization (DSC) employing laser and video technologies respectively. The laser measurement is based on the TOT-Time of Transition Theory; the Ankersmid Video Camera employs image analysis technique.

Software Computer control of light intensity and duration of flash. High accuracy light correction algorithm. Special algorithm for rejection of out-of focus particles. Size and shape filtering algorithms. User program to execute custom-made programs.

Data output ASCII format to external processing programs. 52 built in specific particle parameters. Total image statistics and filters. Differential histograms, cumulative graphs of shape features from single and multiple images. Tables of number, area and volume.

Measurement Cells Liquids, emulsions, opaque liquids, dry powders, free-fall, aerosols, fibers and magnetic particles.

Accessories Automatic sequence with liquid flow controller (T.O.T channel).

Powder Disperser, Powder Feeder.

■ **Dynamic Shape Analyser**

The Dynamic Shape Analyzer, DSA-10, is a complete shape characterization system for particles in motion. Comprehensive particles analysis is obtained through the unique combination of a synchronous strobe light source and video microscope technology. All particles are fully classified by maximum and minimum diameters, area and perimeter, aspect ratio, shape factor, and more.



Fast and Automatic Analysis

For the first time, obtain shape measurements on tens of thousands of particles from 1 micron to as large as 6 mm in minutes. A video microscope camera synchronized with a strobe light takes "still" pictures continuously while particles are in dynamic flow. It is not necessary to stop the flow or limit monitoring to capture stationary objects. The images are enhanced, processed, and analyzed automatically (typically within 1 second) to ensure full representation of your sample. Accurate results are produced in a fraction of the time normally required for microscopic observation.

Modularity: The Key to Versatility

The sample measurement zone is optically defined between the illumination source and the video microscope. This open architecture allows introduction of a wide variety of materials via interchangeable cell modules. Liquid dispersions, powders, slurries and emulsions are easily prepared and introduced by a liquid flow controller. A specially designed vibrating feeder provides continuous introduction of dry powder samples. The DSA-10 is available as a general laboratory system for measurement of a wide variety of materials or as a dedicated analyzer for industrial production control.

Simple to Operate

The Ankersmid Dynamic Shape Analyzer is designed for simple operation. Cell modules for various sample introduction are easily changed. User friendly software is controlled by function keys, while analysis routines for dedicated samples are stored and recalled easily. Lens magnification is altered at the touch of a dial, while picture focus is motor driven and remote controlled. The video camera is computer controlled, and the synchronized solid state strobe has computer

adjustable intensity to optimize the illumination for different fields of view.

Cumulative Analysis

Once the parameters are set for the first image, the DSA-10 automatically processes subsequent images. Hundreds of pictures are processed within minutes, yielding complete geometric data on thousands of particles. Any parameter may be used as acceptance criteria for the database or as cumulative distribution with graphical, tabular and statistical presentation. Both images and statistical data can be displayed and/or printed for a permanent record of the sample.

Description:

The DSA-10 is a dedicated laboratory shape analyzer for analyzing size and shape characterization of moving particles. The particles are either dispersed in a flowing media, gas or liquid, or as a thin layer on a moving slide. A Video Microscope synchronized with a strobe light takes still pictures continuously. The DSA-10 is characterized by an open architecture allowing easy interface with different sample introduction accessories.

■ **CIS-100: Particle Size and Shape Analyzer**

Single Instrument, Dual Measuring Channels.



The Ankersmid CIS-100 is a Computerized Inspection System for Particle Size Analysis (PSA) in the range of 0.5-3600 micron and Dynamic Shape Characterization (DSC) employing laser and video measurement channels respectively. Together, both channels provide all necessary information to analyze and characterize spherical, non spherical and elongated particles, with high resolution, accuracy and repeatability.

The CIS-100 provides the best particle sizing solution for a diversified, dry and wet spectrum of application. Fast and easy to use, the CIS-100 is an optimal tool for Quality Control and R&D laboratories.

This modular system offers versatile cells for Wet, Dry, Emulsion and Fiber length measurements, for a large variety of materials, applications and industries. Interchangeable cell modules allow for optimal flexibility in sample preparation and measurement phase. Automatic alignment test, calibration free. The CIS-100 uniquely combines two independent measuring channels: The Laser channel for physical measurement and particle size analysis employing the Time of Transition (T.O.T) Theory.

The video channel for Visualization and Dynamic Shape Characterization employing Image Analysis techniques with parameters such as Aspect Ratio, Shape Factor, Ferret Diameters, Specific Length, etc.

Three models with upgrading potential are available:

CIS-100L: Laser Channel? Physical measurement and particle size analysis employing the Time of Transition (T.O.T.) Theory.

CIS-100V: Laser Channel and Video Channel for Visualization? A CCD camera with microscopic lens is added to the system enabling to see the particles while being measured. The perfect tool to control, monitor and verify the measuring process.

CIS-100S: Laser and Video Channels with Dynamic Shape Analysis Software? Dynamic shape Characterization employing Image Analysis techniques with parameters such as Aspect Ratio, Shape Factor, Ferret Diameters, Specific length, ect.

Applications: Polymers; Emulsions; Powders; Bacteria & Algae; Fibers; Metals; Magnetics; Minerals; Cement; Sand.

Industries: Food; Chemicals; Mines; Pharmaceuticals; Pulp & Paper; Cosmetics; Metals; Environments; Bio-Technology.

Description

A computerized system for Particle Size Analysis (PSA) and Dynamic Shape Characterization (DSC) employing laser and video technologies respectively. The laser measurement is based on the TOT-Time of Transition Theory; the Ankersmid Video Camera employs image analysis technique.

We invite you into the world of our services!

We provide Products and services for the front end Semiconductor Market (Diffusion/ LPCVD / APCVD / PECVD / MOCVD and epitaxial processes), for Fiber Optical Manufacturing and for various processes in the petrochemical and chemical industry. We focus on product and service excellence. We offer:

For the semiconductor industry

- ✓ Diffusion-oxidation systems
- ✓ LPCVD-PECVD-systems
- ✓ RTP & RTA - Systems
- ✓ System Upgrades
- ✓ Wet-benches
- ✓ Spin-coater
- ✓ Hot-plates
- ✓ Temperature controller
- ✓ Clean room equipment
- ✓ Dry &Wet etch & clean
- ✓ Photochemical filtration and dispense systems
- ✓ Thermal control systems
- ✓ Gas systems
- ✓ MFC's & Valves
- ✓ Pressure and Vacuum measurement & control
- ✓ Gas flow standards
- ✓ Gas/Liquid purification and filtration
- ✓ Vacuum products
- ✓ Vacuum inlet and waste gas collision traps
- ✓ Chemical blending and delivery modules
- ✓ Power supply/readout
- ✓ Accredited calibrations (flow, temperature, pressure, geometry)
- ✓ Cleaning, repair and maintenance
- ✓ Automation and Software
- ✓ Humidity sensors
- ✓ Specialty gases, liquids, solids
- ✓ Heating elements
- ✓ Thermocouples
- ✓ Precursor delivery technology
- ✓ Process Analysis
- ✓ Quartz; Tungsten; Molybdenum; Tantalum; Graphite; Platinum; Others

For the process industry

- ✓ Gas / liquid flow measurement & display
- ✓ Temperature measurement & display
- ✓ Pressure measurement & display
- ✓ Valve positioners & control valves
- ✓ Level measurement & display
- ✓ Turbidity measurement & display
- ✓ Humidity measurement & display
- ✓ Accredited calibrations (flow, temperature, pressure, level)
- ✓ Process Analytical solutions
- ✓ Automation and Software
- ✓ Flow meters

For the pharmaceutical industry

- ✓ Cryotechnology
- ✓ Gas / liquid flow measurement & display
- ✓ Temperature measurement & display
- ✓ Pressure measurement & display
- ✓ Accredited calibrations (flow, temperature, pressure, level)
- ✓ In-line particle analyzers
- ✓ Fluid dispensers & metering pumps
- ✓ Filter and separation systems
- ✓ Process Analytical solutions
- ✓ Automation and Software

Visit our site www.flokal.com

For any particular request please contact: info@flokal.com

Your request/Feedback

We welcome your feedback and suggestions to improve Flokal e-newsletter. Please send your feedback to info@flokal.com or fax us at +(31).486.41.4514



Free subscription Application

Name: _____	Title: _____
Company Name: _____	Dept: _____
Address: _____	
Postal Code: _____	City: _____
Tel: _____	Fax: _____
E-mail Address: _____	