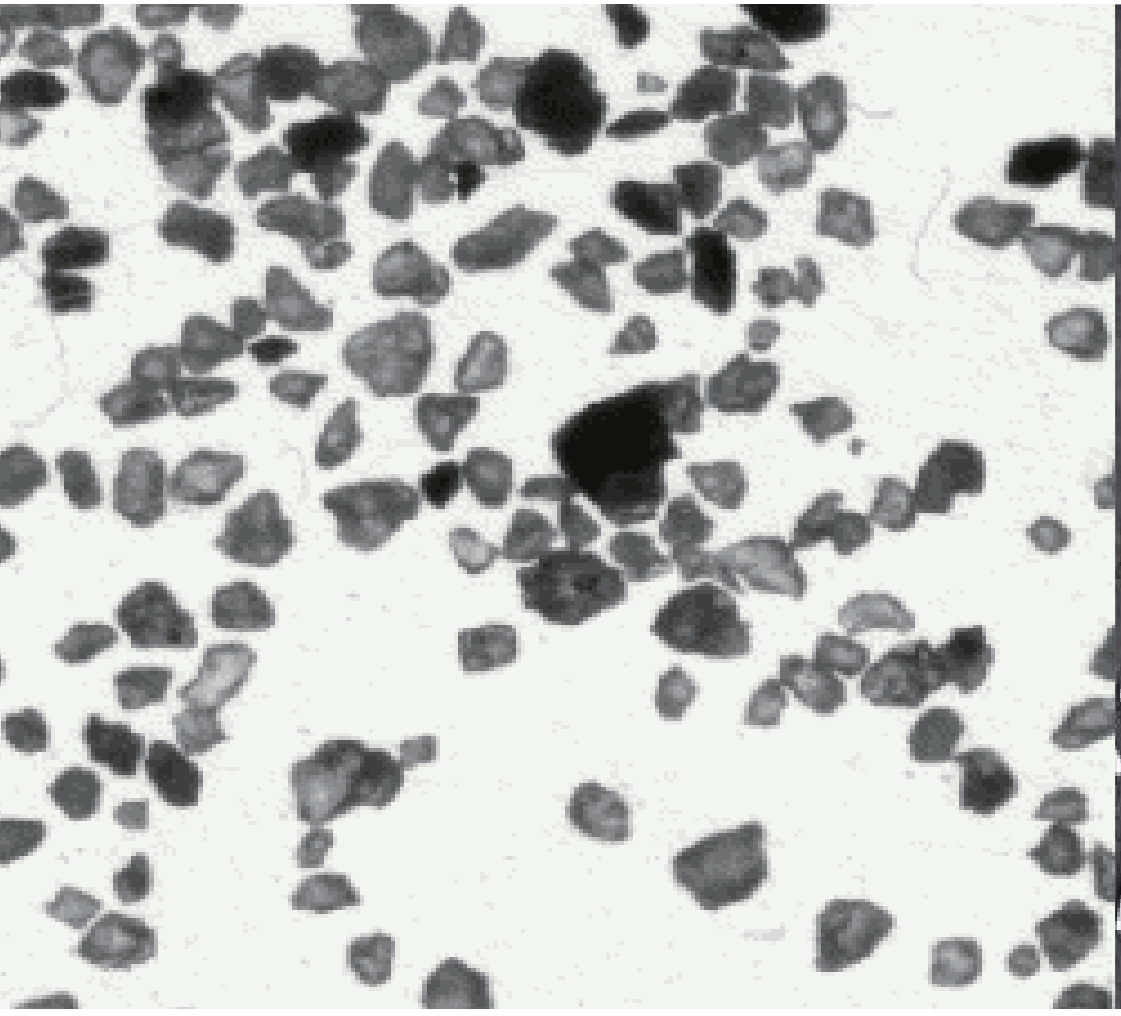
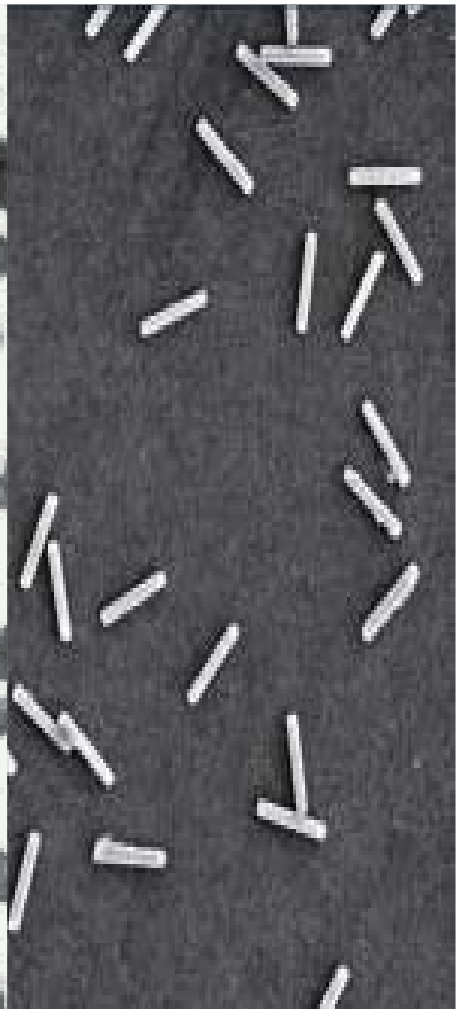
IST AG

IST - Innovative Sintering Technologies Ltd.
Ringstrasse 29 CH - 7324 Vilters Switzerland

Powdershape & Fibreshape





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연구용 및 실시간 공정형
온-라인 분체 파우더 및 파이버 입자 입도 형상 영상 분석기

특징 및 장점

1. 스위스 IST AG사 섬유소 형상 영상장치 Fibreshape systems

Fibreshape 은 여러가지 섬유소 파이버 재료의 형상 분석 및 품질관리 (Qulaity Control: QC)를 위해 편리하게 사용할 수 있는 장치입니다. 파이버쉐이프 기능, 사용자 인터페이스 및 신속한 분석 기능에 있어서 세계 유일의 Unique 한 모델이며 샘플 시료 조제에서부터 재료 인증서 발행까지 다양한 용도로 사용될 수 있습니다.

The measurement range is from 2 um to 30 cm fibre length.

Fibreshape - 섬유소 시료를 손으로 스캐너에 조금씩 투입하는 수동 모델
Fibreshape automatic - 특허받은 특수 피더 장치를 이용하여 섬유소 시료를 자동으로 스캐너에 조금씩 투입시키는 전자동 모델 .

2. Two kind of Powdershape systems exist

Powdershape - where the samples are distributed stepwise by hand on the scanner
Powdershape automatic - where the samples are feeded automatically by the sample feeder on the scanner. (sample feeder: patent pending).

Powdershape is a characterisation system for powders and generally all kinds of particles especially developed for quality inspection. It is unique in its set of features, simple user interface, and rapid characterisation process from the sample preparation to the printed certificate. The measurement range is from 1 um to 20 cm particle size.

3. A new simply product "Microshape" has been issued for powder characterization that has just two measuring ranges

2 - 150 um using the digital microscope with 14600 dpi
10 - 1000 um using an 3600 dpi film scanner

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Fibreshape

1. The Fibreshape system

Non-wovens (industrial fibres)ontrol and characterisation system for fibre applications. It is unique in its set of features, simple user interface, and rapid characterisation process, from the sample preparation to the printed certificate.

The measurement range is from 2 um to 30 cm fibre length.

Two kind of Fibreshape systems exist:

- Fibreshape - where the samples are distributed stepwise by hand on the scanner
- Fibreshape automatic - where the samples are feeded automatically by the sample feeder on the scanner. (sample feeder: patent pending).

The very simple handling of "Fibreshape automatic"

1. Simply distribute your fibre samples on the board
2. Enter a description and select fibre length, fibre thickness or other reports with a single click!
3. All the specimen are scanned and characerized automatically. Obtain the final reports or insert results into quality chart tabase

Your advantages:

- A very quick measurement method
- Easy and fast specimen/sample preparation
- Minimisation of possible operator errors
- Consistent and reproducible results
- Very attractive price/performance relation
- Reliable and rapid industrial method for quality inspection

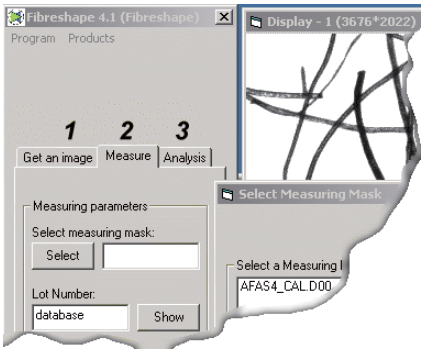
2. Fibreshape features

Key features

- Quick measurement of fibre size and shape distribution
- Length measurement of short fibres (flock, linters and other fibres with a length/thickness ratio < 200)
- Fibre orientation measurement
- Characterisation of optical properties: colour and transparency
- Measurement of trash/dust content (consider mixtures for more details)
- Processing and storage of test data (for further external use and analysis)
- Integration for SAP or similar systems available
- Reliable and rapid industrial method for quality inspection

Fibres of a fineness range from 5 µm up to 5000 µm (5 mm) can be measured.

Simple user interface



To facilitate the fibre characterisation, the user interface exposes only 3 steps:

1. Image acquisition e recognition and measurement
3. Analysis by means of statistical evaluation

Technical data

The Fibreshape System consists of:

- The Fibreshape software
- State-of-the-art image analysis computer running Microsoft Windows NT/2000/XP
- A slide and/or flatbed scanner certified for Fibreshape
- Standard office suite

3. Fibreshape applications

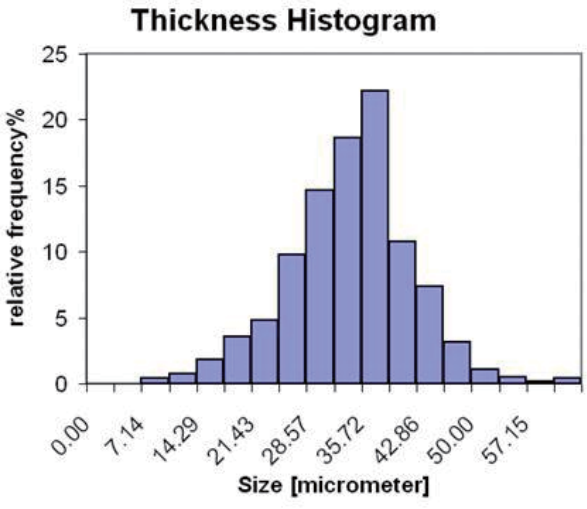
- Wool
- Cotton
- Chipboard and paper industry (wood shred)
- Non-wovens (industrial fibres)
- Fibre composite industry (carbon fibres)

Anchor of wool application

Textile industry (wool)

- Applications: fineness measurement
- Parameters: fibre thickness

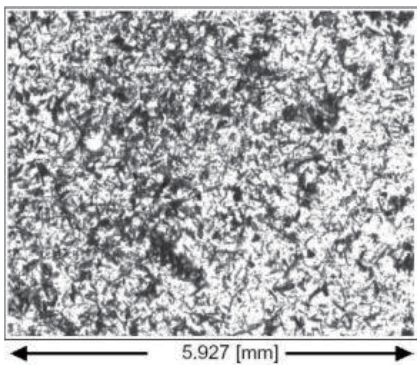
Wool standard sample.



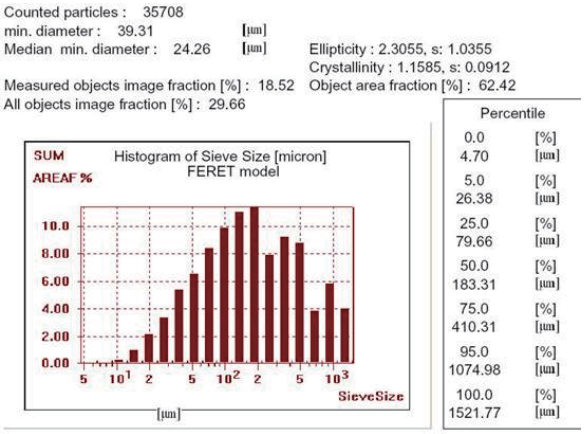
Histogram of wool thickness.
Anchor of cotton application

Chipboard and paper industry (wood shred)

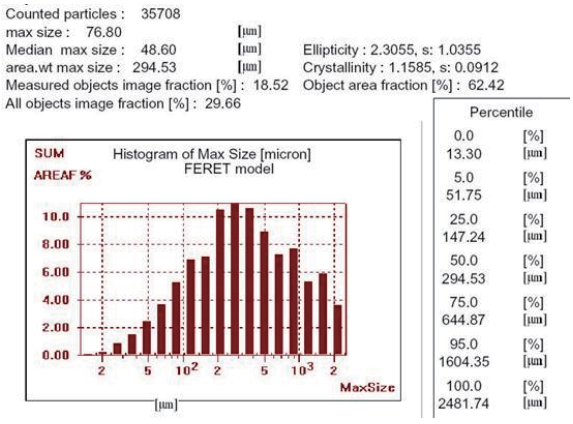
- Applications: fineness measurement, length measurement
- Parameters: fibre thickness and length



Wood shred sample.



Hisam of wood shred thickness.



Histogram of wood shred length.
Anchor of fibre crimp application

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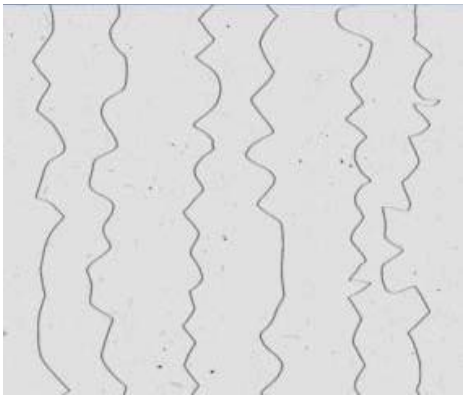
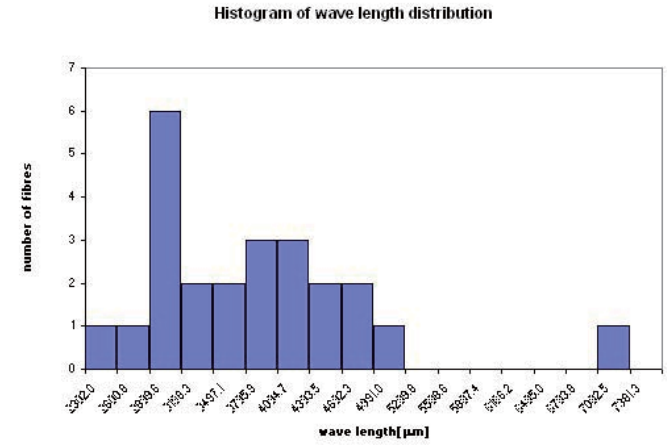
Non-wovens (industrial fibres)

- Applications: fibre wave length measurement
- Parameters: crimp frequency (ASTM), crimp ratio (ASTM)



Fibre crimp sample.

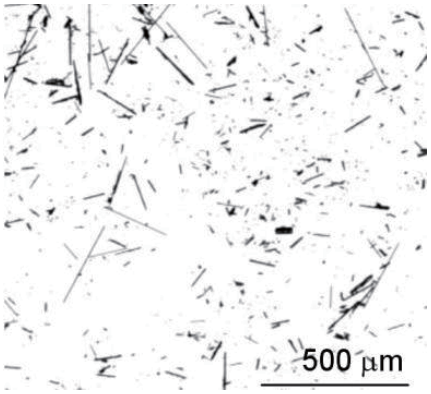
parameters	mean value	standard deviation		total sums		
avg. Wave length	0.37	0.10	cm	number of fibres::	24	
avg.fibre length:	3.62	0.40	cm	streched fibre length	86.91	cm
projected length	2.79	0.24	cm	projected fibre length	66.93	cm
FERET length	2.79	0.24	cm	FERETMAX	67.08	cm
crimp degree	1.30			number of bows	377	
crimp ratio	0.23	(ASTM)				
bow frequency	5.63		Bögen/cm			
crimp frequency	2.17	(ASTM)	1/cm			



Histogram of fibre crimp wave length.
Anchor of carbon fibres application

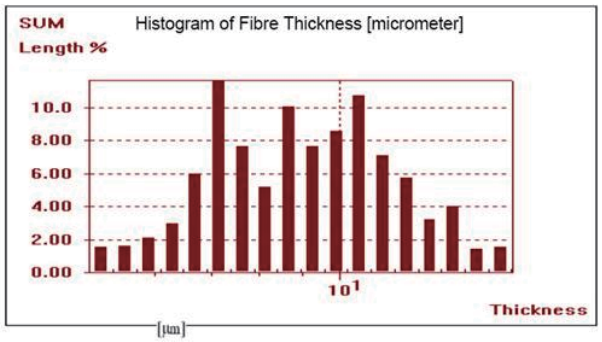
Fibre composite industry (carbon fibres)

- Applications: fineness measurement, length measurement
- Parameters: fibre thickness and length



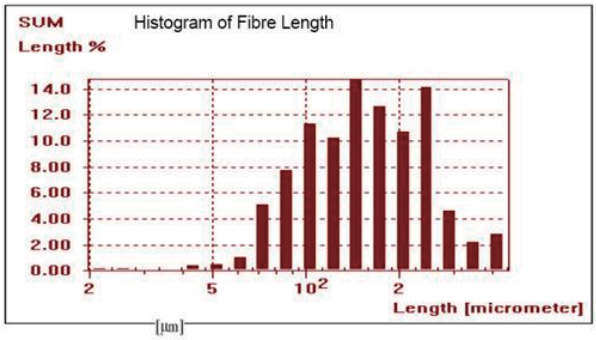
Carbon fibres sample.

Counted objects : 328
Fibre Thickness : 9.00, s: 2.40 [µm]
Median Fibre Thickness : 8.73 [µm]
lwt Fibre Thickness : 9.30 [µm]
Measured objects image fraction [%] : 0.19
All objects image fraction [%] : 3.68
Curvature : 0.00056473
Rectangularity : 0.9967, s: 0.0578
Object area fraction [%] : 5.16



Histogram of carbon thickness.

Fibre length : 135.37 [µm]
Median Fibre length : 118.67 [µm]
Measured objects image fraction [%] : 0.19
All objects image fraction [%] : 3.68
Curvature : 0.00056473
Rectangularity : 0.9967, s: 0.0578
Object area fraction [%] : 5.16



Histogram of carbon lengthn

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A new simply product "Microshape" has been issued for powder characterization that has just two measuring ranges

o 2 - 150 um using the digital microscope with 14600 dpi

o 10 - 1000 um using an 3600 dpi film scanner

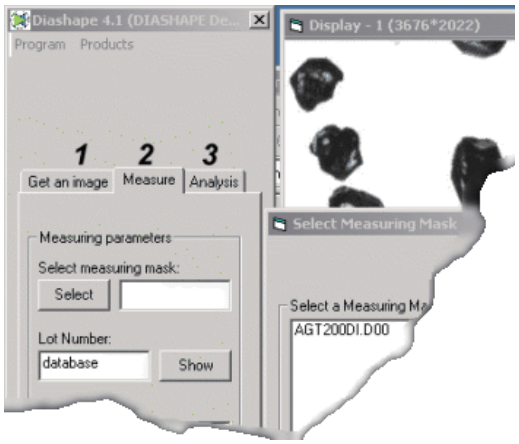
2. Powdershape features

Key features

- Quick measurement of particle size and shape distribution
- Characterisation of optical properties: colour and transparency
- Ready-to-use report/certificate templates for grain size, mesh size and others.
- Quality charts
- Processing and storage of test data (for further external use and analysis)
- SAP compatibility available

Particles of a size range from 5 µm to 50000 µm (5 cm) can be measured.

Simple user interface



To facilitate the particle characterisation,

only 3 steps are needed to obtain a certificate:

1. Image acquisition
2. Particle recognition and measurement
3. Analysis by means of statistical evaluation and report/certificate creation

Technical data

The Powdershape System consists of:

- The Powdershape software
- State-of-the-art image analysis computer running Microsoft Windows NT/2000/XP
- A slide and/or flatbed scanner certified for PowdershapeStandard office suite

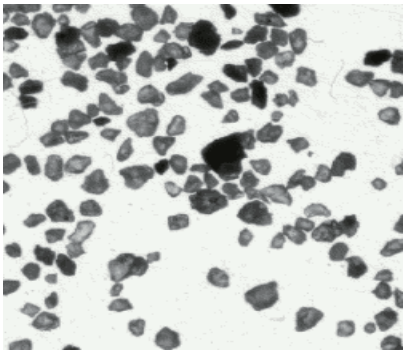
3. Powdershape applications

- Sand
- WC-Co
- Nano particles
- High aspect ratio particles (gypsum)
- High aspect ratio particles (taken with a SEM)

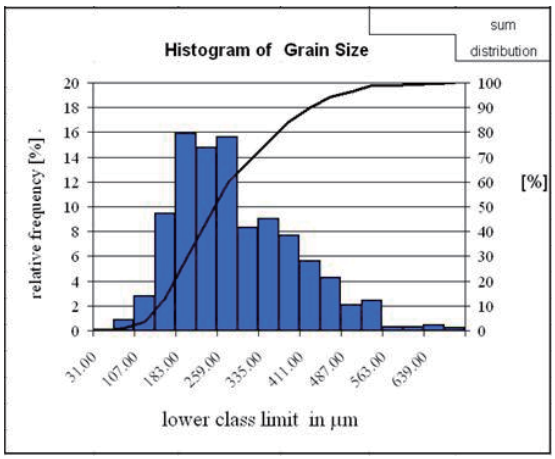
Anchor of sand application

Sand

- Applications: particle sizer
- Parameters: grain size



Sand sample.



Sand grain size distribution.
Anchor of wc-co application

WC-Co

- Applications: particle sizer
- Parameters: grain size

WC-Co sample.

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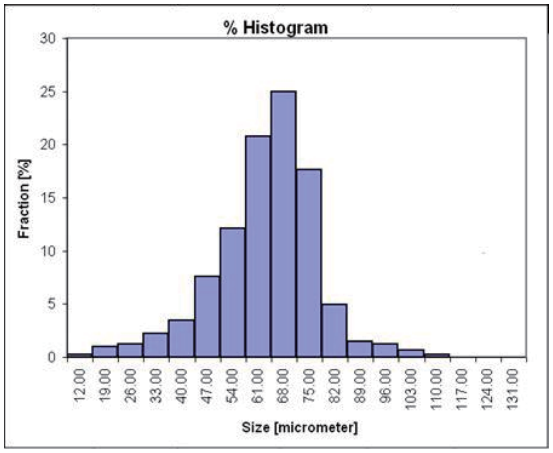
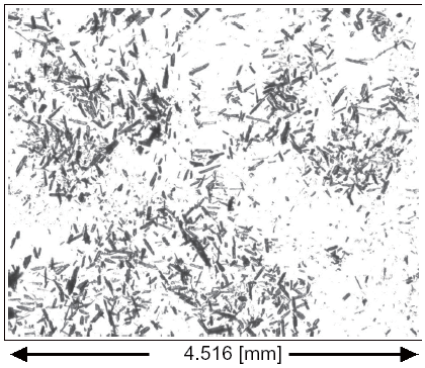


WC-Co grain size distribution.
Anchor of nano particles application

High aspect ratio particles (gypsum)

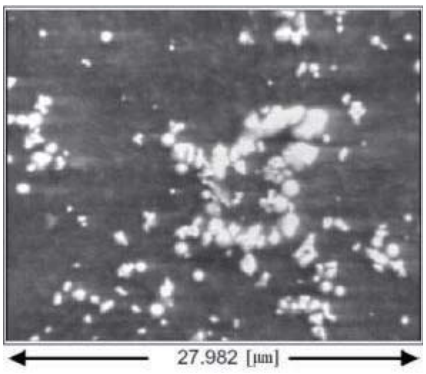
- Applications: particle size, particle length
- Parameters: thickness, length, aspect ratio (calculated)



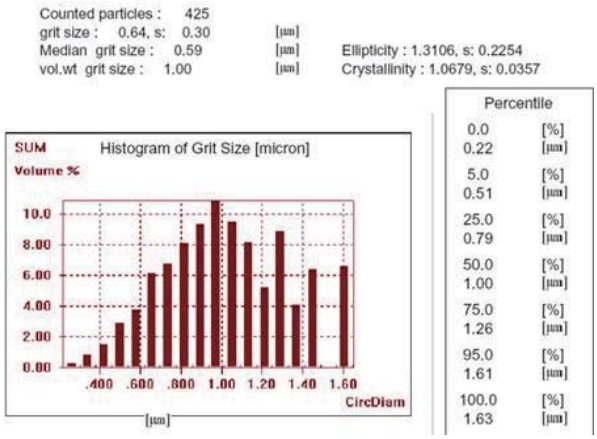
Gypsum sample.

Nano particles

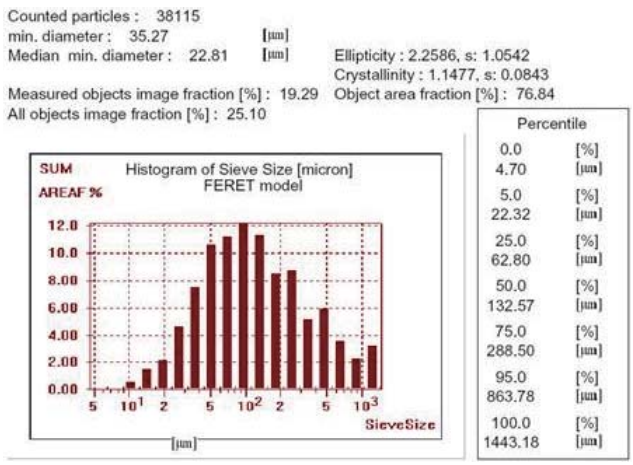
- Applications: particle sizer
- Parameters: grain size



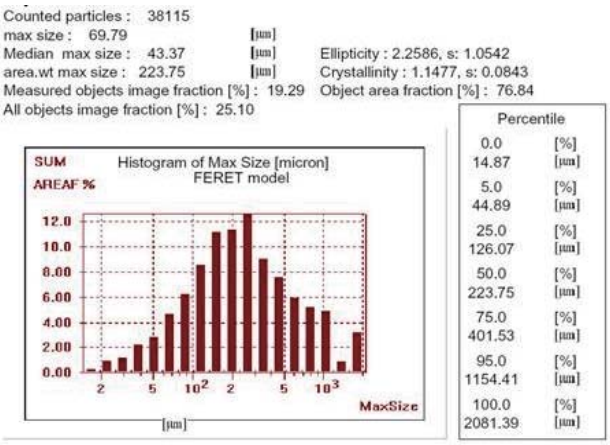
Nano particles sample.



Size distribution histogram of nano particles.
Anchor of gypsum high aspect ratio particles application



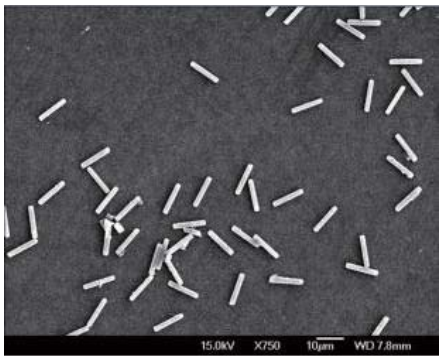
Histogram of gypsum thickness.



Histogram of gypsum length.
Anchor of sem high aspect ratio particles application

High aspect ratio particles taken with a SEM

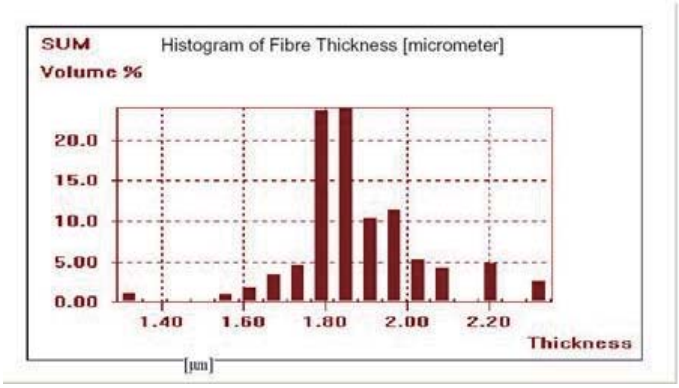
- Applications: particle size, particle length
- Parameters: thickness, length, aspect ratio (calculated)



Stiks sample taken with a SEM.

Counted objects : 58
Fibre Thickness : 1.86, s: 0.16 [µm]
Median Fibre Thickness : 1.84 [µm]
vol.wt Fibre Thickness : 1.88 [µm]

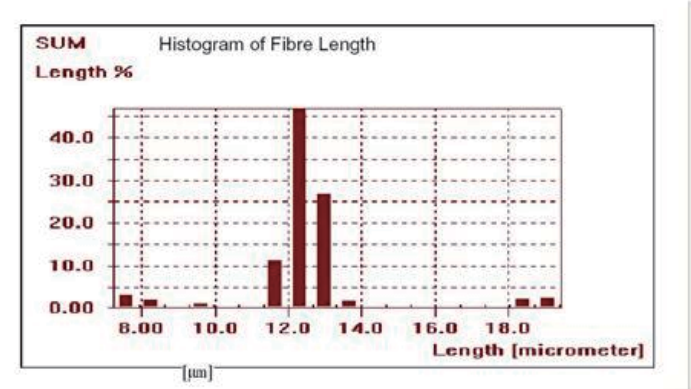
Curvature : 0.00047027
Rectangularity : 1.0061, s: 0.0396



Histogram of stick thickness.

Counted objects : 58
Fibre length : 12.20, s: 1.89 [µm]
Median Fibre length : 12.36 [µm]

Curvature : 0.00047027
Rectangularity : 1.0061, s: 0.0396



Histogram of stick length

Powdershape & Fibreshape

Ver. 2011

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