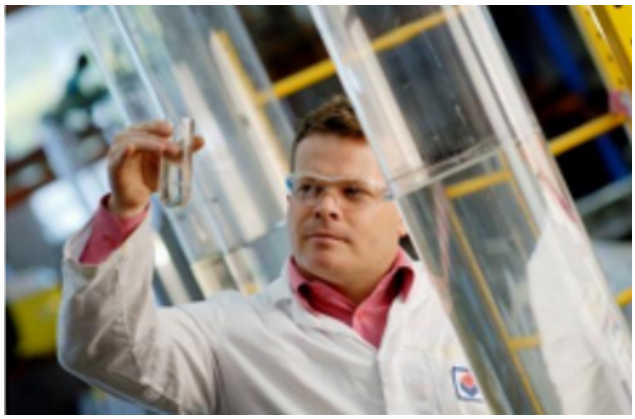
Particle Size Analysis

Size and shape do matter

Challenges

- Pharmaceutical and food industries product quality is affected by variations in the particle size of materials.
- Material handling processes are impacted by the size and shape of particles.
- Process development is restricted by variations in the particle size of materials.
- Choosing personal protective equipment for protection against very fine particles.
- Selecting the correct filtration medium to recycle wastewater to meet environmental standards.
- Sedimentation rates of particles in water systems can adversely impact on flora and fauna.
- EPA and other regulatory bodies require characterisation of stack emissions and discharges.



Sedimentation analysis

Solutions

We use a range of techniques to measure the particle size of materials:

- Laser scattering measures the particle size distribution of powders, dusts and emulsions. This technique can measure particles between 0.1 µm to 600 µm in a liquid matrix.
- SEM-EDX (Scanning Electron Microscope with Energy Dispersive X-ray) is used to characterise the size, shape and composition of trace quantities of particle emissions or dust samples.
- Wet and dry sieving with calibrated sieves is used to determine large particles.
- An aerodynamic classifier is used to size and separate dust samples.
- Sedimentation apparatus is used to determine settling rates, turbidity impacts and particle velocities.

HRL Technology Group Pty Ltd
ABN 89 609 887 327
info@hrl.com.au
hrl.com.au

Melbourne
Level One Unit 4
677 Springvale Road
Mulgrave VIC 3170
Phone +613 9565 9888
Fax +613 9565 9879

Morwell
Tramway Road
Morwell VIC 3840
Phone +61 3 5132 1500
Fax +61 3 5132 1580

Queensland
Unit 2
33-37 Rosedale Street
Coopers Plains QLD 4108
Phone +61 7 3423 4300
Fax +61 7 3345 5937

expertise in action

Case Study

Wastewater treatment

As part of a project aimed at reducing the environmental impact of a large industrial operation, hrl: investigated the wastewater generated by the plant. Advanced chemical, and physical analysis techniques were applied to examine the properties and behaviour of the suspended materials in the wastewater. This enabled our team to develop an effective strategy to improve the plant's water treatment system. Not only did this provide significant reductions in the cost of treating the wastewater, it also assisted the company to meet regulatory requirements.

Additional Services

- ICP-OES
- XRD analysis
- Infra-Red (IR) and UV-Vis Spectroscopy
- Pyro-probe GCMS
- Density (apparent, true and bulk)
- Surface area
- Pore volume distribution (Hg intrusion porosimetry)
- Rheology (viscosity)

Benefits Include

- Savings in milling costs by the improvement of the operation of milling and blending circuits.
- Consistent product quality.
- Meeting of quality control standards set for domestic and international markets.
- Accurate decisions relating to processes can be made first time, saving money and time.
- Protection of the safety of the client's people and the environment.
- Optimisation of processes to fulfil manufacturing specifications by the optimisation of particle size.

Contact
Nick Miller

Telephone +61 3 9565 9912
Mobile +61 407 555 330
Email nmiller@hrl.com.au

Need more information? Go to hrl.com.au

The company's NATA Accredited Laboratories number is 561.

HRL Technology Group's ISO 9001 Quality Management is certified by BSI under certificate FS605116

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