

## Powders Consultancy Services

### Who are we?

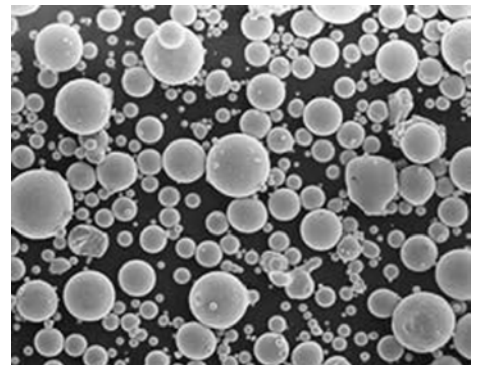
Ceram is a materials technology consultancy that focuses on innovation, sustainability and quality assurance of materials. Headquartered in Staffordshire, UK, and with approved laboratories around the world, Ceram helps clients to overcome materials challenges and develop new products, processes and technologies, thereby enhancing profitability. Ceram operates in a wide range of sectors: construction; healthcare and medical devices; aerospace & defence; automotive & transport; consumer & retail; energy & environment; minerals; and semiconductor & electronics.

- A UKAS-accredited laboratory, providing fast-turnaround analytical testing from our state-of-the-art laboratories
- A technical consultancy, with a focus on both novel inorganic material development (glass, ceramics, metals), and optimising powder processing
- Pilot-plant facilities for pre-factory scale-up
- Novel Intellectual Property) – available for license – in the fields of novel bioactive materials, Controlled Release Technology based on inorganic matrices and composites with enhanced mechanical properties

### What do we offer?

Whether powders represent the final product or whether they require subsequent processing as dry powders or suspensions (to create coatings or shaped products) Ceram can select from a wide range of processing and analytical techniques to deliver:

- Bespoke products (with novelty checks against existing patents)
- Improved end-product performance via improved microstructures
- Valuable, independent marketing information on coating performance
- Diagnosis on coating / structure failures
- Improved intermediate- and end-product yields
- Improved approaches to Quality Control (what technique? What pass/fail limits?)
- Suggestions for improved SOP (Standard Operating Procedures)
- Support on process scale-up



## Powders Consultancy Services (continued)

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### How do we do it?

Any investigation normally begins with analytical testing to provide baseline data. For powders, an assessment of particle size, particle shape, composition (via X-Ray Fluorescence) and crystal structure (X-Ray Diffraction) provides useful information. Our extensive surface analysis techniques (SIMS, XPS and 3DP) allow us to monitor chemistry and topography at the nanometre level. When powders are dispersed in water, measurement of rheology and zeta potential compliment the above techniques.

Armed with baseline test data, our experts can then apply their knowledge of factory processing and suggest solutions via a number of routes. These include:

- use of additives, pH changes to optimise zeta potential and so rheology for subsequent processing
- making key measurements on intermediate products "downstream" (for example, strength measurements on items pressed from granulate; appraisal of powder coating thickness)
- use of Factorial Experimental Design (FED) to demonstrate strong correlations between a given powder property and key end-product properties
- recommendations for QC tests and associated protocols
- monitoring and improving the quality and performance of coatings



### Need more information?

Phil Jackson, Ceram's powders expert, will be at PSA 2011 on Monday 5 and Tuesday 6 September. Alternatively, contact us as below.

