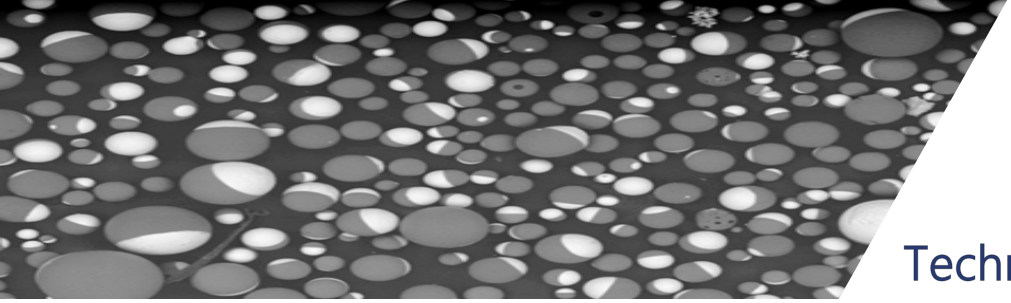

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Technology for Licence

Janus Particles (Inorganic)

Unique Dual Functionality & Scalable Manufacturing Process

In brief

Janus particles are "two-faced asymmetric" particles with different properties on each side, giving them unique directional and functional behaviours.

Researchers at University of Nottingham have developed a highly rapid economic method to make customisable Janus particles at scale, featuring unique surface topologies and material combinations (metals, ceramics and glasses).

A single-stage, reliable, reproducible and scalable method of Janus particle manufacture

JP size, material combinations and morphology (shape) can be tailored

Produces unique inorganic Janus materials combinations – e.g. metals and glasses

Background

Janus particles (JP's) are solid particles with two distinct sides (A/B) that have very different properties.

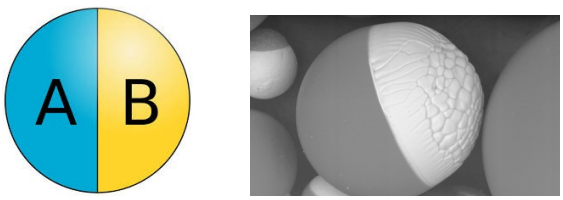

Fig 1: *Janus particle makeup and example P40 glass with Ag*

They are typically manufactured using multi-stage, complex, time-consuming and relatively expensive processes such as masking, sputtering, or via Pickering emulsion etc. Challenges with their economic manufacture (at scale) have served to limit their commercial use.

Key Features

The University of Nottingham has expanded its novel microsphere flame spheroidisation process to manufacture uniquely structured Janus particles.

Key features are:

- Facile production process amenable to be transferred to GMP standards
- Production technique eminently scalable, **KGs to Tonnes**
- Particles formed from **unique inorganic material combinations** (metals, ceramics, glasses - including bio glasses)
- **Tailorable particle sizes and topologies**, resulting in unique inorganic material interfaces
- **Creation of innovative surface topologies,** offering larger surface areas and new material interaction sites etc

Unique Materials

- Particle size: from **25 to 250 microns in diameter**
- Particle materials: include **silver, platinum, copper, titanium dioxide, iron oxide, barium titanate, and various glasses (silicate and phosphates)**

Various Applications

Janus particles have a significant number of potential industrial applications, see below:

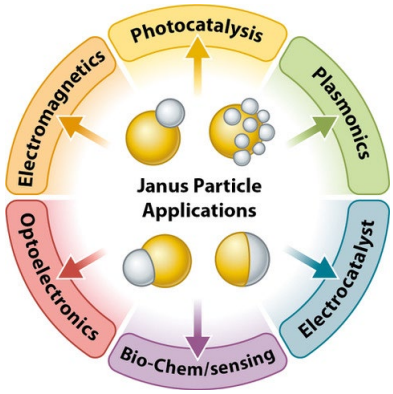

Fig 2: *Janus particle applications*

Want to Know More?

If you are interested in JPs and their potential applications, we would like to hear from you. Samples of JPs for assessment can be supplied by agreement.

IP

Patent protected

Enquiries

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