

# Commercialisation of Pickering Emulsions

## Fundamentals and applications in agrochemicals and coatings

### Reviewed by Jhonny Rodrigues

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This event, hosted by the Royal Society of Chemistry, was held at Burlington House, London, UK, on 23rd November 2017. There was a good attendance with 55 delegates from academia and industry, mainly from the UK. A brief overview of some of the presentations is described here to give a flavour of recent progress in this area.

The first session was called 'Control of Pickering Emulsions'. Professor Bernard P. Binks (University of Hull, UK) reviewed the fundamentals of solid-stabilised emulsions with the use of inorganic silica particles, whereas Professor Steven P. Armes (University of Sheffield, UK) extended the topic with the use of polymer particles.



Fig. 1. Oil drops ( $d \approx 1 \mu\text{m}$ ) in water stabilised by 20 nm particles. Reprinted with permission from (1), Copyright (2002), with permission from Elsevier

The second session was called 'Formulating with Pickering Emulsifiers'. An interesting talk by Phil Taylor (Syngenta, UK) showed the use of emulsions to encapsulate herbicides with clay particles. Isocyanate chemistry is applied to polymerise the emulsion drops to create robust capsules. The stability of light-sensitive agrochemicals was improved and the release rate was tuned with the thickness of the capsule.

The third session was called 'Emulsion Polymerisation'. Konrad Roschmann (BASF, Germany) spoke on the preparation of particles with different hydrophobicities by combining inorganic with organic chemistries. Examples of silica-methyl acrylates were discussed. The advantage is the hybrid nature, silica gives the hardness and the polymer the elasticity required for the application already being commercialised in paints.

### Conclusion

This one day conference presented mostly fundamental research in the morning, while in the afternoon, some interesting commercial and potential commercial applications were described. The event provided a useful introduction to this important topic.

### References

1. B. P. Binks, *Current Opin. Colloid Interface Sci.*, 2002, **7**, (1–2), 21

### The Reviewer



Jhonny Albino Rodrigues Ramos joined Johnson Matthey, UK, in 2010. His research interests are in the formulation of catalytic materials with emulsions, particles, polymers, surfactants and silicones.