CHEMISTRY

SURFACTANTS

NEUTRONS FOR SCIENCE

Investigating viscosity to improve product functionality and industrial processing

Surfactants are one of the main ingredients in detergents, shower gels, shampoos and body care products.

THE PROBLEM TO SOLVE:

Surfactant molecules line up and self-assemble in twin-layer stacks. This structure may change radically when the product is poured or pumped through a pipe or tube, resulting in changes to its viscosity. These transitions need to be understood for industrial processing and the design of product functionality.

A STEP TOWARDS THE SOLUTION

Small-angle neutron scattering measurements can provide insight into the microstructure of liquids and gels under evolving conditions – of shear or temperature, for example.

THE RESULT

With this type of structural measurement we can better understand or predict shear stress properties measured macroscopically. This will inform, for instance, the selection of additives required to produce the necessary product functionalities.

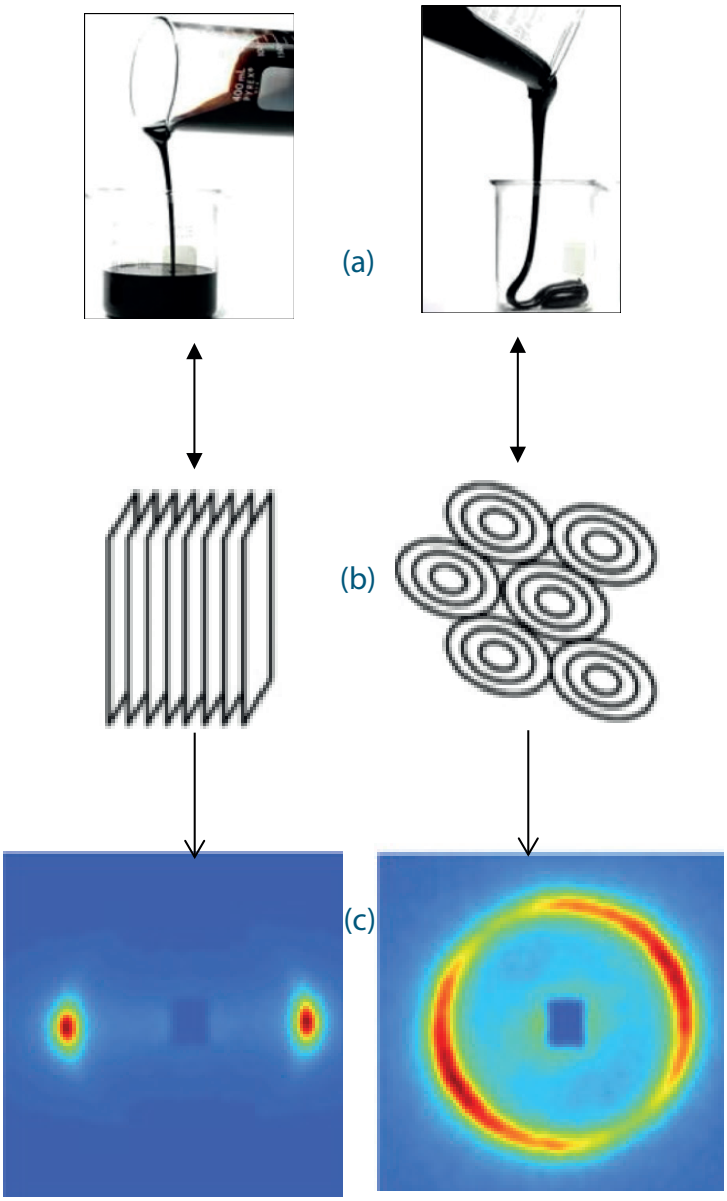

Fig. 1
a) Examples of different viscosity properties
b) The corresponding microstructure
c) Measurement using small angle neutron scattering

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http://sine2020.eu/industry.html

Reference: Gentile at al. 2014, Langmuir, 30, (2014), Annual Report 2014 (ILL)

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SINE2020 Industry Consultancy is now open for requests

Proof-of-concept experimental beam time is being offered to Industry!

RAPID ACCESS

Fast-stream processing for industrial applications, optimising result lead times.

CONFIDENTIALITY

Activity covered by non-disclosure agreements. Only company name and measurement type to be published.

FLEXIBLE SERVICES

In many cases industrial processes and conditions can be re-created in the test laboratory. Final data analysis and reporting are provided.

EXPERT CONSULTANCY

Industrial R&D professionals in collaboration with experienced specialists from European neutron centres.

PARTNERS

Czech Republic
France
Germany
Hungary
Netherlands
United Kingdom

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