diamond

CONSUMER PRODUCTS

Industrial research using Diamond

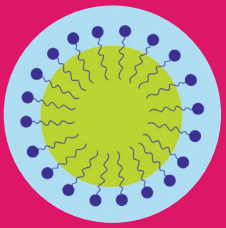
The eternal dream to explore matter at its deepest level has continually driven scientists to build more and more powerful instruments from simple microscopes to elaborate X-ray sources.

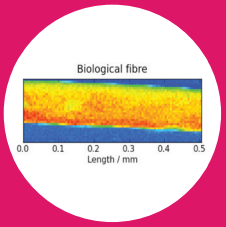
Diamond Light Source is a sophisticated synchrotron light facility which can generate highly intense beams of light ranging from IR and UV to X-rays, all of which are making research at the cutting edge of modern science possible. Diamond provides specialist analytical techniques for the atomic to microscale characterisation of materials as diverse as novel pharmaceuticals, catalytic materials, coatings, motor oils, and large engineering components.

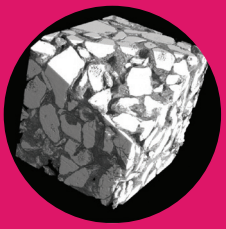
Our dedicated Industrial Liaison Team of highly skilled scientists is available to support you in every step of your research. The team can help to translate your R&D challenges into meaningful analytical solutions by making use of its diverse expertise in synchrotron methods.

Some examples of how Diamond can be used for consumer products research are outlined overleaf.

diamond.ac.uk/industry







Applications

Characterisation of formulations

- Structural characterisation of dispersions, emulsions and partially ordered materials under controlled conditions;
- Phase behaviour of self assembled systems including surfactants, lipids and polymers;
- Particle size and shape analysis (including proteins in solution).

Behaviour at interfaces

- Surface structure and ordering in systems ranging from paints and coatings to detergents and cosmetics;
- Understanding interfacial interactions in surfactants, polymers and proteins at a molecular level;
- Investigation of the thermodynamic, structural and dynamic properties of adsorbed molecular films.

Packaging and processing

- Structure, thickness and roughness of thin films and coatings;
- Imaging microscale features in bulk samples e.g. cracks and pores;
- Investigating corrosion, oxidation and flow under *in situ* processing conditions.

Novel and complex materials

- Structural identification and characterisation of crystalline solids under controlled environmental conditions;
- Element mapping to determine chemical composition of samples with very high resolution e.g. biological fibres or wheat grains.

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For further information

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