

**FOOD**

# 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 food research and development are outlined overleaf.*



## Our techniques

### Products and formulation

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- Examine phase behaviour in emulsions, suspensions and gels to assess the performance of new ingredients and additives;
- Investigate emulsifiers and complex structures for reducing fat content in products;
- Examine the crystalline and solution structure of food proteins.

### Packing and shelf life

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- Monitor structural changes with thermal, mechanical and ageing treatments;
- Characterisation of organic residues and trace materials and contaminants (chemical fingerprinting);
- Investigate novel packaging materials.

### Sustainability and waste

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- Understand how metals are distributed within raw ingredients;
- Assess the suitability of novel sustainable ingredients;
- Optimise processing conditions to minimise energy use and waste.

### Food processing

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- Monitor structural and chemical changes with processing conditions to optimise product behaviour;
- Image flow in powder and liquid systems;
- Investigate friction, wear and lubrication in components.

SF-FOD-012-2



**For further information**

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