

Next-generation water-soluble degradable polymers for liquid formulations

Oxford researchers unveil degradable, water-soluble polymers for applications in agrochemicals, paints and other liquid formulations, offering sustainable solutions with no invisible water pollutants left behind.

Polymers in Liquid Formulations (PLFs), often known as ‘polyols’, are commonly used in resins, polyurethane manufacture and coatings, adhesives and as surfactants in liquid formulations. While their use is widespread in everyday products, most are non-degradable, leading to an increasing demand to re-design those molecules to meet sustainability standards.

University of Oxford researchers have developed a library of degradable polymers designed for use as thickening, binding, stabilising, surfactant, film-forming, adhesion promoter or encapsulation agents. These polymers represent a major leap forward in material science by combining precision molecular engineering with environmental responsibility.

Applications: Agrochemical, paint and pigment dispersion, cosmetic emulsions, industrial coatings



Features

Degradable and water-soluble

Benefits

Can be used as a more sustainable polyol alternative

Features	Benefits
Incorporation of carbon dioxide in manufacturing	Polymer synthesis includes CO ₂ as a raw material, turning a waste greenhouse into a valued resource
Precisely tuned molecular structures	Tight control over molecular weight and dispersity enabling tuneable hydrophilicity, optimised solubility and predictable film formation and rheology
High thermal and chemical stability	The polymers exhibit thermal stability up to 200 – 300°C, enabling compatibility with standard formulation processes

Available for

- Co-development
- Consulting
- Licensing

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.

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