Title: **Advancing Sustainability in Polymers in Liquid Formulations (PLFs): A Mission-Oriented Innovation Approach: Catalysed by the Royal Society of Chemistry**

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Polymers in Liquid Formulations (PLFs) are essential performance ingredients used across a wide array of products, from household cleaning and personal care items to industrial applications in agriculture, automotive, construction, and wastewater treatment used as thickeners, emulsifiers, and binders. However, their production, use, and disposal raise significant environmental concerns, impacting critical planetary boundaries such as soil, water, and air pollution, as well as biodiversity.

With PLFs largely absent from mainstream research and policy agendas, yet increasingly under regulatory scrutiny, the RSC adopted a "mission-oriented innovation" framework. This strategy aimed to catalyse a collaborative portfolio of research and innovation by uniting researchers, research councils, policymakers, and regulatory bodies. The program also explored how "bottom-up" contributions from industry and the broader stakeholder network could be integrated into innovation policy to support sustainability transitions.

We employed a mission-oriented innovation methodology to develop the Sustainable PLFs Revolution Roadmap. The overarching ambition is to "de-fossilize" the PLFs industry, transitioning toward more sustainable practices by 2040. The resulting Sustainable PLFs Roadmap outlines two key time bound missions with the goal of transforming the industry by 2040: (i) Developing and Scaling Biodegradable PLFs by 2030 and (ii) Advancing Circular Economy infrastructure by 2030. These missions focus on de-fossilizing the PLF industry and promoting environmentally sustainable practices, ultimately paving the way for a more sustainable and circular future in polymer production that are environmentally benign by design.