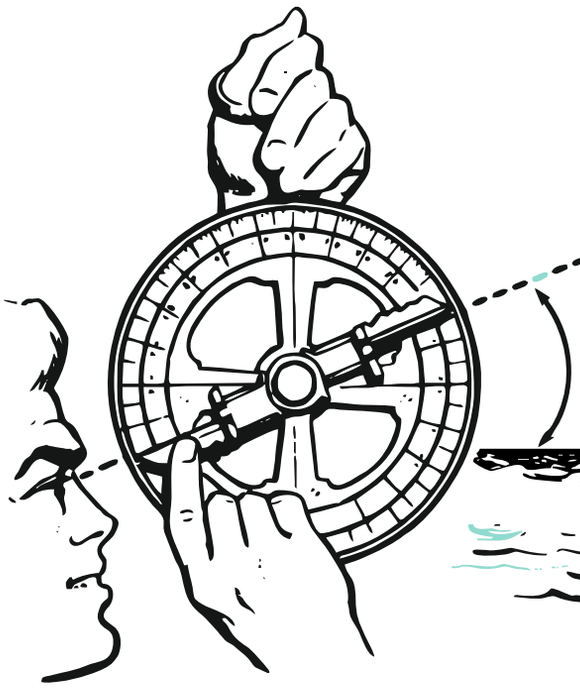


Łukasiewicz
Institute of Heavy
Organic Synthesis
BLACHOWNIA

HORIZON europe

TOPIC ID:
HORIZON-JU-CBE-2025-IA-05

# SSbD bio-based polymers/copolymers unlocking new market applications

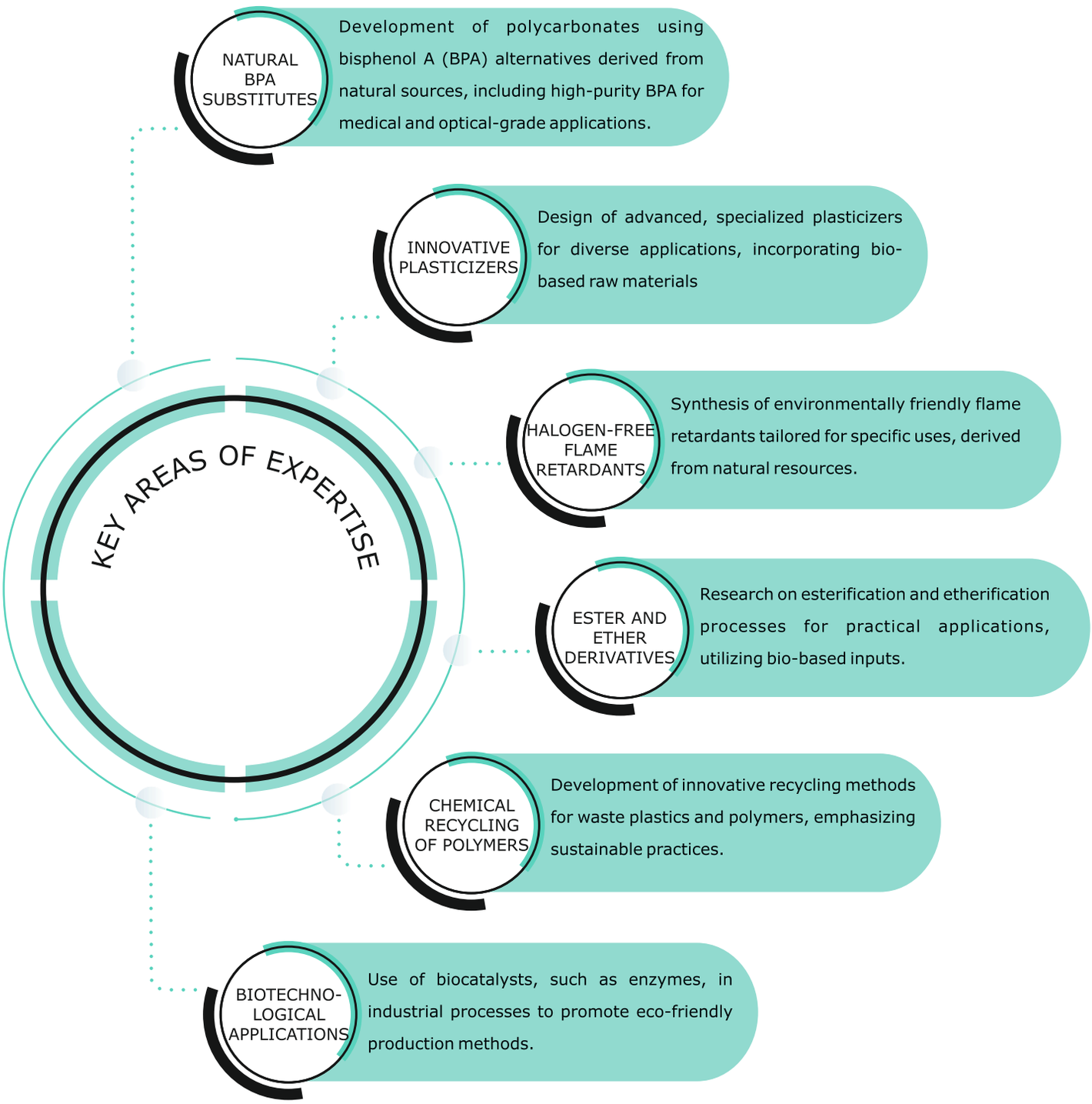
## Green polycarbonates

Type of project: IA

Call opening date: 4 April 2025 Call deadline: 17 September 2025

## ABOUT US

The Catalytic Processes Research Group form Łukasiewicz ICSO specializes particularly in technologies utilizing natural raw materials.



## OUR IDEA

Our idea is to develop **high-strength polycarbonate materials and their copolymers** derived from bio-based resources, exhibiting superior performance characteristics suitable for diverse market applications. This initiative aligns with the objectives of the HORIZON-JU-CBE-2025-IA-05 call, focusing on Safe and Sustainable by Design (SSbD) bio-based polymers and copolymers to unlock new market opportunities.

ICSO team has identified several natural compounds as potential starting materials for polycarbonates:

**Isosorbide:** Derived from glucose, isosorbide is a promising bio-based diol that can replace BPA in polycarbonate production. It offers rigidity and thermal stability, making it suitable for high-performance applications.

**Vanillin-Based Monomers:** Vanillin, obtained from lignin or other biomass sources, can be chemically modified to produce monomers capable of forming polycarbonates. These monomers contribute to the development of polymers with desirable mechanical and thermal properties.

**Cardanol:** Sourced from cashew nut shell liquid, cardanol can be transformed into diols or other reactive intermediates for polycarbonate synthesis. Its incorporation imparts flexibility and impact resistance to the resulting polymers.

**Lignin-Derived Compounds:** Lignin, a major component of plant biomass, can be depolymerized into phenolic compounds that serve as precursors for polycarbonate production. Utilizing lignin not only provides a renewable feedstock but also adds value to this abundant by-product of the paper industry.

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