## Objectives

- Move the production process from the proof of concept (TRL 3) to a validation in laboratory environment (TRL 4).
- Validate isosorbide bis(methyl carbonate) (IBMC) production process in a relevant industrial environment (TRL 5).
- Develop polyurethane dispersions (PUDs) based on IBMC-derived materials.

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- Assess coatings prepared from PUDs.
- Develop and assess nitrogen-containing IBMC derivatives for use in non isocyanate polyurethane (NIPU) coatings.
- Develop IBMC-based NIPUs dispersions for use as adhesives.
- Develop IBMC based polycarbonate polyols for use as adhesive components.
- Develop catheters with antibacterial and antithrombotic properties using IBMC-based NIPU.

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- Confirm that the isosorbide derivates and the final products meet the toxicology requirements of REACH.

## Consortium

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# Validation of an industrial process to manufacture isosorbide bis(methyl carbonate) at pilot level

VIPRISCAR

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BBI JU

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Bio-based Industries Consortium

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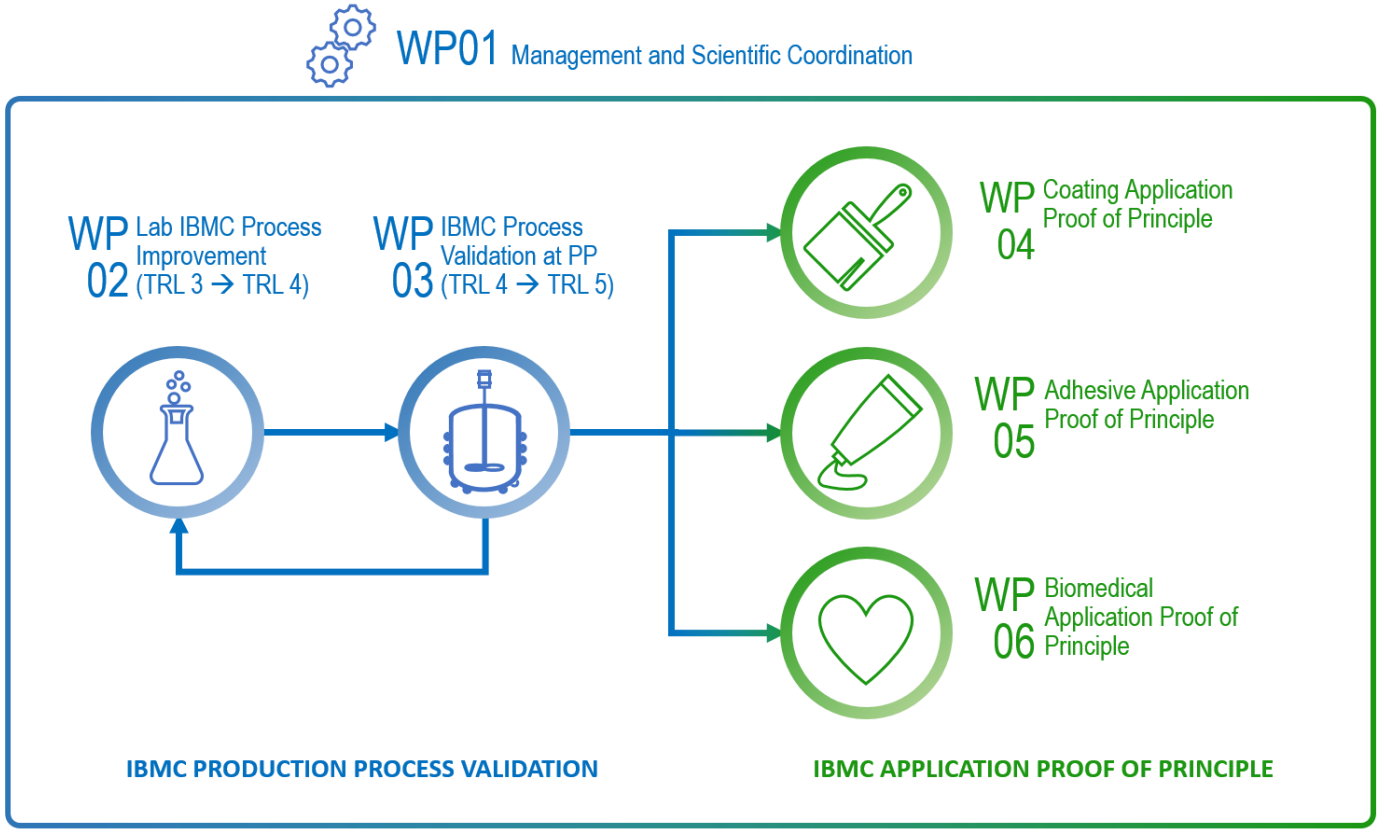
**Isosorbide** (IS) is still a low market volume bio-based chemical but with a high Cumulative Annual Growing Rate of 10.9%.

The use of isosorbide (IS) in the manufacturing of intermediate building blocks and high volume polymers, such as polycarbonates, has some drawbacks that could be overcome by using **isosorbide bis(methyl carbonate)** (IBMC), a barely explored IS secondary building block, which is proposed to enhance IS value chain.

The project will also show a proof of principle for **the added value IBMC** brings to the market by demonstrating the usefulness of polymers derived thereof in three high-volume market sectors:
industrial **coatings**, **hot-melt adhesives**, and **biomedicine** (antithrombotic-antimicrobial catheters).

# Structure of the project




**VIPRISCAR will validate a highly-efficient IBMC production process in an industrially relevant environment, able to be up-scaled and produce IBMC at a similar price to that of current oil-based monomers used in polycarbonates and polyurethanes.**