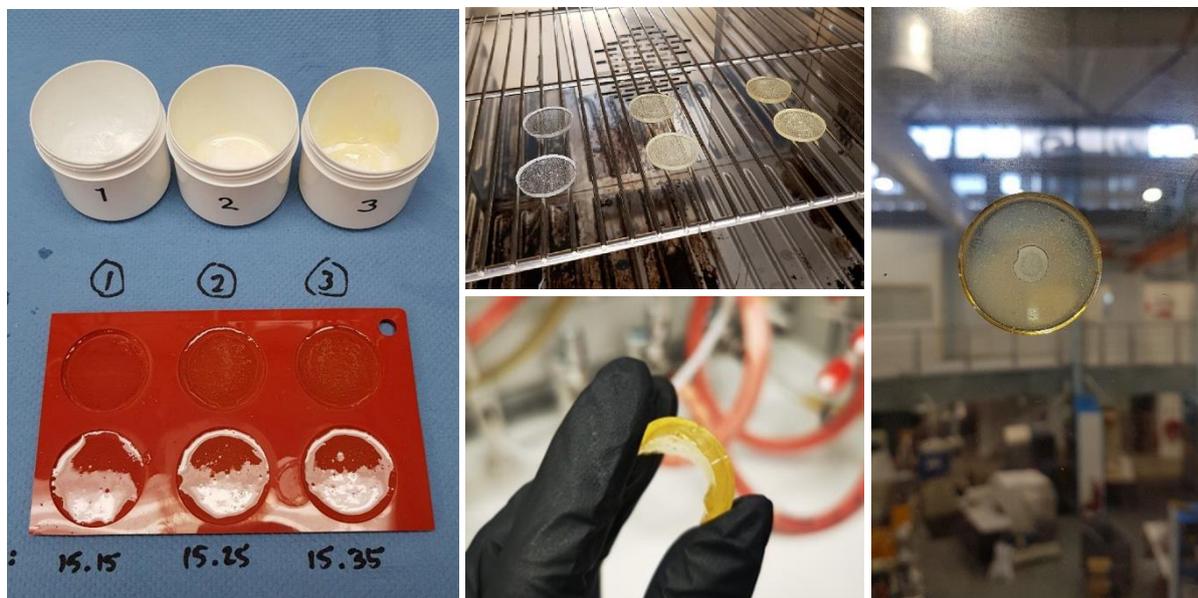


CHAMPION consortium reaches milestone in safe and circular material development



Researchers of the CHAMPION project have successfully prepared a first set of innovative bio-based materials with promising properties for coatings, adhesives and home care ingredients.

CHAMPION sets out to develop mild methods to convert safe-by-design bio-based chemical building blocks into novel polymeric materials. The selected chemistry to achieve this is called aza-Michael addition. This chemistry is fast even at room temperature, and it is very atom-efficient; no co-products are liberated during polymerisation ('click chemistry'). Unlike well-known industrial click polymerisation systems such as those based on isocyanates and epoxides, the polymerisation technology targeted in CHAMPION stays away from toxic and unsustainable ingredients, by discarding chemicals and materials that receive unfavourable scores in toxicity assessments. In addition, the consortium prioritises only those aza-Michael polymer materials that are circular, i.e. recyclable back to monomers, and/or biodegradable.

Evaluation of material performance is an integral part of the project. Applications of interest for the consortium's industrial end-users range from flexible and rigid coatings and structural adhesives to water-soluble home-care ingredients. For coatings and adhesives, an important requirement is sufficient hardness of the product. In initial screenings of aza-Michael polymerizations on lab-scale, this proved to be challenging; most of the cured products were relatively soft rubber-like materials. However, the CHAMPION team is happy to announce that they have now been able to demonstrate that, by shifting to ingredients able to provide a more densely cross-linked polymer network, materials with good hardness could be prepared. The formulations will now be further evaluated by participating industrial end-users.

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For more information about CHAMPION, visit the project website <https://www.champion-project.eu> or contact the project manager directly on champion-project-admin@york.ac.uk.

