

Request for Universities/Knowledge institutes (26/10/2018)

Project title: **Plastic to Precious Chemicals**

Acronym: P2PC

Project ID	
Type	ICON
Period	2 years
Starting date	April 2019
Total project budget (€)	TBD
Total man months	TBD
Subsidy percentage	According to SBO- and O&O regulations
Amount of subsidy (€)	TBD
Coordinator	TBD
Industrial partners	Current partners not disclosed at the moment
Executing partners	TBD

Project description

Reference Situation

Pyrolysis oil obtained via thermo-chemical processing (cracking) of waste plastics is a complex blend of hydrocarbons of different chemical families such as alkanes, alkenes, naphthenics and aromatics. The oil is a mixture of branched and linear hydrocarbons of different chain lengths, partly having double bonds. Finally the pyrolysis oil also contains impurities with oxygen, halogens, sulfur and nitrogen in the molecules.

A conventional processing train for upgrading pyrolysis oil to attractive chemicals consists of different steps such as cracking step, separation steps (eg fractionation), hydrotreatment and others, processing naphtha and a hydrocarbon fraction with a higher carbon number range.

Research Target

The present research project aims to systematically investigate optimisations compared to the reference situation, that

1. yields higher value materials and chemicals,
2. increases the overall value of the product mix as per ton of feedstock,
3. is more efficient delivering a better economic performance in terms of cost.
4. is greener than the currently established upgrading steps (eg optimizing carbon footprint of the process as a whole),
5. delivers process with minimal safety risk

Requested expertise

With this Request for Partners, we would like to invite universities/knowledge institutes that have expertise, technology or knowledge relevant to the project to respond to this request.

To reach the project goals, the consortium is particularly searching for the following (non-limitative) expertise:

- Identification of useful/valuable molecules in complex mixtures
- Value determination of molecules inter alia by knowhow on applications of derivatives from alpha olefins
- Sourcing and knowhow on molecules from natural feedstocks as alternatives from synthesis
- Green conversion of molecules to valuable building blocks
- Catalytic conversions in waste and biomass processes inter alia de-oxygenation and de-nitrogenation of oils
- Separation technologies (extraction, chromatography, distillation, float/sink, ...) and especially expertise in smart combinations of technologies.
- Modelling of processes in order to select and optimize process paths taking into account cost of equipment, cost of operation, green principles enabling selection of optimal valorization approaches (including LCA and TEA).

This list of tasks, however, is not limiting, so that other expertise deemed relevant to reach the project goals can also be offered.

How to reply to this request

Please send an e-mail before **November 12th, 2018, 12:00 PM (noon)** to your association representative (see contacts listed below), and describe your organisation or research group, the technology, expertise or solution you can offer and your experience:

- KULeuven: Bert Lagrain (bert.lagrain@kuleuven.be);
- UAntwerpen: Ann Aerts (annfb.aerts@uantwerpen.be);
- UHasselt: Lieve De Doncker (lieve.dedoncker@uhasselt.be);
- UGent: Elisabeth Delbeke (Elisabeth.Delbeke@UGent.be);
- VUB: Philippe Westbroek (Philippe.westbroek@vub.ac.be);
- Centexbel: Isabel De Schrijver (isabel.deschrijver@centexbel.be);
- VITO: Karolien Vanbroekhoven (karolien.vanbroekhoven@vito.be);
- BBEU: Brecht Vanlerberghe (brecht.vanlerberghe@bbeu.org);
- Other: Karen Van Wesenbeeck (kvanwesenbeeck@catalisti.be)

Evaluation

The initiating industrial partners, together with Catalisti, will review all responses obtained and will make a selection of the best (complementary) proposals. After submission of your offer, you can be contacted by telephone or invited to a live meeting (if this is deemed necessary by the industrial partners) to further elaborate your offer. **Please already tentatively reserve time on November 19th (afternoon) in your agenda for this live meeting with the initiating companies.**

The final decision on selected research partners and whether or not the project will be further developed and finally submitted to VLAIO will be communicated the latest on November 16th, 2018. This will depend (among others) on how many companies have expressed their interest in participating in the project. Please contact Karen Van Wesenbeeck (kvanwesenbeeck@catalisti.be; (+32)(0)472/81.63.97) or your association representative if you have any questions concerning this RFP.