

Request for Industrial Partners to join the Industrial Advisory Board

Project title: Sustainable PROduction of bio-based Multi-reactive Isocyanates

Acronym: PROMIS

Project ID	
Type	Strategic Basic Research for clusters (cSBO), bio-economy, intercluster project with the spearhead cluster SIM
Period	3 years
Starting date	January 1 st , 2023
Total project budget	€ 1.500.000
Subsidy percentage	according to SBO regulations
Industrial partners (Advisory Board)	Current partners not disclosed at the moment
Applicants (Knowledge partners)	KU Leuven, VITO, University of Antwerp
Catalisti contact	Aron Deneyer (adeneyer@catalisti.be)

Project description

Introduction

Polyurethane (PU) foams are widely used due to their unique and superior properties. In most applications polyurethanes are obtained by reacting a polyol part and an isocyanate part. For foam applications, most often aromatic diisocyanates (monomers) such as toluene diisocyanate (TDI) and methylene diphenyl diisocyanate (MDI) are used. Production of these monomers is typically based on phosgenation of the corresponding diamines, with all raw materials tracing back to fossil resources (BTX).

Driven by sustainability, PU-companies are looking for renewable alternatives that consists of an aromatic core with at least two functional isocyanates on it. Before these companies will be able to formulate novel isocyanates in their PU applications, the potential of several sustainable building blocks should be screened. Moreover, the chemistry, going from building block over aromatic diamines towards isocyanate, should be investigated into more detail, looking at alternative and more sustainable pathways compared to traditional phosgenation. Unfortunately, the current existing alternative pathways are at very low TRL. In other words, the first part of the value chain (from raw material towards isocyanates via aromatic diamines) should become more mature before proof-of-concepts at kg-scale in several PU-applications can be demonstrated in for example an ICON project. In addition to PU-applications, the applicability of functionalized bio-based intermediates (for example, aromatic diamines) can also be explored in specific follow-up projects with focus on sustainability of diamine-based polymers/materials. Prior to these follow-up projects at higher TRL and in order to overcome the above mentioned hurdles, a strategic basic research project is initiated by the spearhead clusters Catalisti and SIM.

Goals

The overall goal of this project is to evaluate the feasibility to produce sustainable multi-reactive isocyanates (MICs). In a first part of the project, several interesting bio-based building blocks will be synthesized and extracted from renewable resources. Next, these bio-based building blocks will be converted into aromatic diamines and subsequently multi-reactive isocyanates at lab-scale. In the end of the project, a clear view on the feasibility of some interesting new MICs should be available taking into account following parameters: technical feasibility and sustainability of the new production route compared to traditional synthesis from BTX, toxicity and a first high-level screening of properties for PU-polymer and material applications.

RfP PROMIS

The purpose of this project is to have a strong blend of expertise covering the first (bio-based building blocks) and middle part (chemistry going from building block via aromatic diamines towards isocyanates) of the PU-polymers and materials value chain.

Request

To foster interaction with the industry, the project partners are looking for companies that wish to be involved in this cluster strategic basis research (cSBO) project as part of an advisory committee.

More specific, the project partners are searching for

- **industrial partners along the PU value chain**, including PU raw material producers, PU polymer producers, PU formulation companies and PU recycling companies.
- **industrial partners interesting to convert and valorize functionalized intermediate building blocks (for example, aromatic diamines) for polymer and material applications.**

The primary role of companies during the pre-project phase is to tailor the project proposal to the actual needs of the companies and thereby maximise the likelihood of future utilisation of the results. During the project execution, a two-way dialogue between the researchers and the user field involved remains essential to achieve the targeted knowledge transfer from scientific research to concrete applications. The primary role of companies during the implementation phase is:

- to assist the research from an economic point of view;
 - to assist in designing and preparing the translation of the results into concrete economic applications.
- During the cSBO project execution, companies may contribute as member of the advisory committee. In addition, they may prefer to undertake parallel R&D activities that are related to the subject of the SBO project at their own expense. In the latter option, the parallel R&D activities are not part of the SBO project. Companies may explore the possibility to obtain funding from the Agency for Innovation and Entrepreneurship

The Advisory Board is open to all interested companies, including companies established outside the Flemish region.

Important notice: Companies that wish to be involved in this cSBO project, will need to be (at least) member of Catalisti and/or a member of SIM. For more information on membership and membership fees, please contact Aron Deneyer (adeneyer@catalisti.be). In compliance to SBO regulations, the following requirements apply during the project implementation:

- *All commercial members of the advisory committee are required to make a monetary contribution of minimum € 250/year in the case of an SME or minimum € 1,000/year in the case of a large enterprise or another organisation.*
- *A commitment to a substantive contribution and a time investment to participate in bilateral consultations with the project executors and/or meetings of the advisory committee.*

How to reply to this request

Please send an **email before 14 July 2022** to Aron Deneyer (adeneyer@catalisti.be) with lgarciagonzalez@catalisti.be in CC, and **briefly describe your interest and potential contribution** to the project. After submission of your offer, you will be contacted for more information on the project contents, and a [Letter of Intent](#) and [Questionnaire](#) will be provided to join the Advisory Board of the project. Feel free to contact Aron Deneyer (adeneyer@catalisti.be; +32 472 375 260) or Linsey Garcia-Gonzalez (lgarciagonzalez@catalisti.be; +32 479 45 04 26) or for any further questions you might have related to this request.

Important notice: Partners that wish to participate in spearhead cluster-supported projects are required to be member of one of the spearhead clusters. For more information on membership and membership fees, please visit our [website](#) or contact Aron Deneyer (adeneyer@catalisti.be).

Contact

Please contact Aron Deneyer (adeneyer@catalisti.be, +32 +32 472 375 260) if you have questions concerning this RfP.

This Request for Partners is copyrighted by Catalisti vzw and its contents may not be reproduced without the prior written approval of Catalisti. This Request for Partners reflects the status of the proposed project on its date of release and the information contained herein may not be fully up to date or accurate. All information contained herein constitutes valuable information of Catalisti and may not be used for any purposes other than the evaluation of a person's interest in participating in the proposed project.