

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

Project title:

**Lightweight rotomoulded parts complying with the flame retardant requirements for Transportation (e.g. EN45545 for railway) or Building & Construction (e.g. Euroclass)**

Acronym: ROTO

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**

Polymer transformation technologies like blowmoulding, blown film and sheet & film extrusion, have made the transition from mono-layer to multi-layer parts in the 70's and 80's. This transition was needed as 1 material solutions could not comply with the always increasing performance requirements of the market. For technical reasons, rotational moulding missed this revolution and continued to focus on mono-layer parts with lower added value.

The robotisation of rotational moulding and its direct tool heating & cooling revolutionises the rotational moulding process. It is now also possible to produce multi-layer parts with rotational moulding. This allows to overcome the intrinsic weaknesses of conventional rotational moulding and to take the full benefit of its strengths.

## Research Target

The project aim is double. First of all the project wants to investigate the impact of the innovation in heating and cooling on the material properties of the parts produced and hence determine the processing limits of the process. On the other hand the projects wants to explore new applications for which the process can combine light weight structures with functional layers.

Safety regulations are becoming more and more stringent in every industry. A good example is the new European regulation on flame retardancy for the Railway Industry (EN45545). The same evolution is seen in Building & Construction. Material technology exists to make PE and PP through compounding compliant with these regulations. Unfortunately, this is always done at the expense of the mechanical performance of the material. Multi-layer solutions are a way to overcome this and to fully comply with all the requirements for a functional part. Robotised rotational moulding is now well suited to produce such parts: combining function with light weight and strength.

## 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:

- Material
  - Development of a PE or PP compounds (FR compound) complying with fire testing regulation
- Process
  - Set-up test facility at selected knowledge partner
  - Investigation and mapping of the impact of heating and cooling cycle on the part performance
  - Validation of the production of a multi-layer rotomoulded part with the FR compound as an outside layer and a skin/foam/skin structure on the inside for optimised structural properties
- Application
  - Validation of the performance of the multi-layer rotomoulded part in fire testing
  - Validation of the mechanical performance of the multi-layer rotomoulded part as per the functional requirement of the application (rigidity, assembly, lightweight, ...)

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](mailto:bert.lagrain@kuleuven.be) );
- UAntwerpen: Ann Aerts ([annfb.aerts@uantwerpen.be](mailto:annfb.aerts@uantwerpen.be) );
- UHasselt: Lieve De Doncker ([lieve.dedoncker@uhasselt.be](mailto:lieve.dedoncker@uhasselt.be));
- UGent: Elisabeth Delbeke ([Elisabeth.Delbeke@UGent.be](mailto:Elisabeth.Delbeke@UGent.be));
- VUB: Philippe Westbroek ([Philippe.westbroek@vub.ac.be](mailto:Philippe.westbroek@vub.ac.be) );
- Centexbel: Isabel De Schrijver ([isabel.deschrijver@centexbel.be](mailto:isabel.deschrijver@centexbel.be) );
- VITO: Karolien Vanbroekhoven ([karolien.vanbroekhoven@vito.be](mailto:karolien.vanbroekhoven@vito.be) );
- BBEU: Brecht Vanlerberghe ([brecht.vanlerberghe@bbeu.org](mailto:brecht.vanlerberghe@bbeu.org) );
- Other: Karen Van Wesenbeeck ([kvanwesenbeeck@catalisti.be](mailto: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. 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 16<sup>th</sup>, 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](mailto:kvanwesenbeeck@catalisti.be); (+32)(0)472/81.63.97) or your association representative if you have any questions concerning this RFP.