Partnering Opportunity

Profile status : Published

Research Development Request

Slovenian partners are searching for a consortium for the Horizon 2020 Green Deal topic: Building and renovating in an energy and resource efficient way

Summary

Two Slovenian research institutes and a large Slovenian company are searching for integration into a consortium for the call Horizon 2020 Green Deal (LC-GD-4-1-2020). The aim of the project is to develop a new process for expanded polystyrene production with improved reaction to fire properties and enabling recycling of waste expanded polystyrene from construction and packaging. Companies and research institutions with expertise in expanded polystyrene are sought.

Creation Date	24 November 2020
Last Update	26 November 2020
Expiration Date	24 December 2020
Reference	RDSI20201124001
Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/73d3462b-555c-4e18-bb53-324eb2e12b04

Details

Description

Expanded polystyrene (EPS) is a material that is widely used in the external thermal insulation of buildings. Safety requirements in terms of polymers' reaction to fire are currently becoming much stricter, thus imposing important obstacles to EPS. EPS's reaction to fire may be influenced by the addition of fire retardants (FRs). Fire-retardant EPS foams are obtained by introducing additives into the styrene or the polystyrene matrix before expansion to obtain homogeneous dense raw EPS beads. Thereafter, the control over the reaction to fire properties of EPS foams lies entirely in the hands of the manufacturer of the raw EPS beads. Similarly, the recyclability of EPS in the

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construction industry is related to presence or absence of FRs. Currently available EPS from the construction sector is not-recyclable due to hexabromocyclododecane (HBCD) content, while the EPS from the packaging industry has no improved reaction to fire properties. Currently the most utilized FRs for EPS, i.e. organic halides, are being phased out because of their proven or suspected adverse effect on the environment and health. Thus there is a need to design an effective fire-retardant system using halogen-free FRs that are environmentally friendly with a low toxic potential.

The aim of this applied project is to reduce the combustibility of EPS foams through the development of fire-retardant coatings on EPS beads with an improved reaction to fire effect at lower FR concentrations, without significantly impairing their mechanical and insulation properties. The goal is to reach a reaction to fire class as high as B, for which we elaborate three objectives:

• to research a new, halogen-free, fire-retardant coating, which will form a strongly bonded barrier layer on the surface of the EPS beads,

• to develop a technological procedure for the preparation of composite EPS foams and to test their reaction to fire, and

• to evaluate industrial feasibility of the developed technological procedure and to maximize the impact. Industrial feasibility of the developed halogen-free FR coating procedure will be assessed to maximize the impact. The developed composite EPS foam has immediate market potential due to greatly improved reaction to fire. The results of the project will provide flexibility for EPS manufacturers, their independence from manufacturers of EPS beads, and a new route for recycling of FR-free packaging EPS. Start technology readiness level (TRL) 3-4, end TRL 7. Duration 36-48 months.

The Slovenian research institute has numerous experience in research and development of new functional inorganic and organic materials, which include fire retardant materials. They are equipped with modern analytical infrastructure and suitable expertise. For this project they are in contact with a Slovenian building and civil engineering research institute and a Slovenian large company, which creates thermal insulation systems and energy solutions.

The Slovenian research institute and his partners are looking for a multidisciplinary consortium or a coordinator with a consortium that is planning to submit a proposal for the European Green Deal Call under topic 4.1. Building and renovating in an energy and resource efficient way. TOPIC ID: LC-GD-4-1-2020, single-stage. Potential partners are for example

- industry - manufacturers of EPS, construction companies,

- consultancy,

- research organizations.

The partners should have one of the following expertise: integration of green fire class B EPS into energy and resource efficient, industrial construction/renovation workflows; design of offsite manufacturing, installation and post-construction monitoring; active or passive solutions for the building envelope; integration of green technologies (photovoltaics, energy storage systems). The potential cooperation form is research cooperation agreement.

Deadline for expression of interest: 24 December 2020. Call deadline: 26 January 2021.

Advantages and innovations

Innovative aspects: improvement of reaction to fire for EPS from fire class E to fire class B, use of halogen-free fireretardants, recycling of waste EPS from construction and packaging, independency of EPS producers from the suppliers of chemicals.

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Stage of development

Under development/lab tested

Comments Regarding Stage of Development

The final stage will contain a demonstrative production of EPS composite with EU fire class B properties.

IPR Status

Secret Know-how

Keywords

Technology	
02006001	Materials, components and systems for construction
02006004	Installations related to construction (energy, lighting,)
02007002	Building materials
02007014	Plastics, Polymers
Market	
08001018	Polymer (plastics) materials
NACE	
M.72.1.9	Other research and experimental development on natural sciences and engin

Network Contact

Issuing Partner

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Ref: RDSI20201124001





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Open for EOI: Yes

Dissemination

Relevant sector groups

Materials Sustainable Construction

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

1949

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English

Client Country

Slovenia

Partner Sought

Type and Role of Partner Sought

Type: Sought are manufacturers of EPS, construction companies, consultancy, research organizations with expertise in integration of green fire class B EPS into energy and resource efficient, industrial construction/renovation workflows; design of offsite manufacturing, installation and post-construction monitoring; active or passive solutions for the building envelope; integration of green technologies (photovoltaics, energy storage systems). Role: Joining the consortium by signing research cooperation agreement.



Type and Size of Partner Sought

University, R&D Institution, 251-500

Type of Partnership Considered

Research cooperation agreement

Program - Call

Framework Program

H2020

Call title and identifier

Building a low-carbon, climate resilient future: Research and innovation in support of the European Green Deal (H2020-LC-GD-2020) TOPIC ID: LC-GD-4-1-2020

Submission and evaluation scheme

Single-stage submission scheme

Coordinator required

Yes

Duration

208 days

Deadline for EOI

24 Dec 2020

Deadline of the Call

26 Jan 2021

Weblink to the call

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-gd-4-1-2020

Attachments



