

A Greek SME company within the materials sector is looking for partners to develop composite lightweight materials with upgraded physicochemical functionality and improved economic feasibility.

## Summary

Profile type	Company's country	POD reference
<b>Technology request</b>	<b>Greece</b>	<b>TRGR20220819010</b>
Profile status	Type of partnership	Targeted countries
<b>PUBLISHED</b>	<b>Research and development cooperation agreement</b>	
Contact Person	Term of validity	Last update
<a href="#">Areti Mourka</a>	<b>19/08/2022</b> <b>19/08/2023</b>	<b>26/08/2022</b>

## General Information

### Short summary

Final products from lighter materials require less energy to transport, which gives engineers and designers the opportunity to increase the efficiency of their products when working with lightweight materials. The Greek SME company is interested in the development of composite lightweight materials with upgraded physicochemical functionality and improved economic feasibility. Positively affecting the materials properties, such as its physical hazards and environmental fate (degradation).

### Full description

In recent years, research has been focused on materials with superior physicochemical functionality. For instance, - multifunctional and intelligent materials for energy applications, - nanomaterials that modify physical stimuli, absorb or prevent adsorption of chemicals, and so on. Although the results of research are particularly encouraging, their use in commercial end products is not always feasible, especially in "traditional" industries, due to the high cost of the proposed application. The nanomaterials, in particular, form aggregates that limit their activity and workability, so a limit will be also applied on the economics of their application.

The Greek SME company has acquired the know-how on the development of coated lightweight materials based on industrial minerals, which can be applied to a wide range multitude of materials and use cases.

A use case of expanded perlite has been already successfully contacted.

The aim of the research so far was to formulate the morphology of the substrate and, in combination with the coating or impregnation conditions, to optimize the physical and chemical properties of the “active” layer, the physicochemical reactions and ultimately to maximize the economic benefits of the material in use.

The prepared lightweight composites address different applications, such as photocatalytic fillers for paints and plasters, Phase-Change-Materials and fillers with advanced insulating properties for mortars and plasters and lightweight composites for environmental applications (heavy elements & dyes removal).

To date the efficiency of these materials have been validated in the lab (TRL4).

#### Advantages and innovations

The Greek SME possesses the know-how to:

- i. Modify the physical properties of the lightweight substrates in order to maximize the efficiency of the resultant composite,
- ii. Prepare lightweight composites with tailored-made properties depending on the final application.

#### Stage of development

**Lab tested**

#### IPR Status

**No IPR applied**

#### Sustainable Development goals

**• Goal 12: Responsible Consumption and Production**

## Partner Sought

#### Expected role of the partner

Consortia for R&D activities

#### Type of partnership

**Research and development cooperation agreement**

#### Type and size of the partner

- **Big company**
- **University**
- **SME 50 - 249**
- **R&D Institution**
- **SME <=10**
- **SME 11-49**

## Dissemination

Technology keywords

- **02007015 - Properties of Materials, Corrosion/Degradation**
- **02007024 - Nanomaterials**
- **02007019 - Lightweight materials**
- **02007009 - Materials Handling Technology (solids, fluids, gases)**

Targeted countries

Market keywords

- **08001015 - Other speciality materials**

Sector groups involved

- **Environment**
- **Creative Industries**
- **Sustainable Construction**
- **Materials**