

Seeking SME Expert in Asphalt Emulsions and Rejuvenators for Collaborative R&D Project under Horizon Europe/Eurostars

Summary

Profile type

Research & Development Request Spain

Company's country

POD reference

RDRES20260302006

Profile status

PUBLISHED

Type of partnership

**Research and development
cooperation agreement**

Targeted countries

• World

Contact Person

[Enrico FRANZIN](#)

Term of validity

3 Mar 2026**3 Mar 2027**

Last update

3 Mar 2026

General Information

Short summary

A Spanish SME working in pavement maintenance and surface restoration aims to develop rejuvenating agents derived from industrial waste and organic by products to restore the mechanical properties of aged bitumen. The project targets high RAP mixtures, reduced CO₂ emissions, and improved durability.

Partners experienced in asphalt emulsions, rejuvenator formulation, and pilot production are sought for joint development under Horizon Europe or Eurostars.

Full description

The project addresses the need for advanced recycled asphalt binders capable of restoring aged bitumen by adjusting its maltene/asphaltene balance through innovative rejuvenators derived from waste streams and chemical by products.

The results will allow for the optimization of the design of recycled binders with high RAP (Recycled Asphalt Padding) rates, adjusting the waste-rejuvenator dosage to restore workability, fatigue resistance, and durability against rutting, while simultaneously reducing virgin bitumen consumption and associated emissions. Understanding the diffusion coefficients and induced rheological changes will enable the modeling of the long-term behavior of the aged bitumen-rejuvenator system and the establishment of formulation and quality control criteria applicable to specifications and regulations.

The typical duration of an R&D project focused on new binders and recycling technologies is around three years, which is compatible with the time required for formulation synthesis, advanced characterization (FTIR-ATR, rheological tests, fatigue testing), and validation at the experimental section scale. From a scientific/technological point of view, the project is based on the mixing thermodynamics of asphalt colloidal systems and on the diffusion kinetics of the rejuvenator in aged matrices, applying FTIR-ATR spectroscopy and Arrhenius-type diffusion models to correlate microstructural parameters (asphaltene/maltene ratio, degree of oxidation) with the macroscopic response of the binder and the mixture

Advantages and innovations

The main advantages are: reduced consumption of fossil bitumen and virgin aggregates, decreased waste sent to landfills, and lower CO₂ emissions thanks to the higher percentage of RAP and potentially warm mixes. From a functional standpoint, pavement durability is improved by restoring flexibility and fatigue resistance to the aged binder, while maintaining or even increasing resistance to rutting and thermal damage.

The project's key innovations lie in the use of industrial waste and byproducts as a source of rejuvenators, the integration of metal oxides or other advanced components into the binder itself, and the modeling of rejuvenator diffusion using FTIR-ATR to optimize formulations at high recycling rates. This allows for the development of specially designed bitumens specifically conceived for intensive recycling, aligned with circular economy objectives and European recommendations for RAP reuse.

Technical specification or expertise sought

A SME with proven experience in the design and manufacture of conventional and modified asphalt emulsions, preferably oriented toward recycling processes and sustainable surface treatments.

The ideal partner should demonstrate:

- Capability to formulate project specific emulsions, including binders incorporating rejuvenating agents, low emission formulations, and full compatibility with high RAP contents.
- Pilot scale and industrial scale production capacity for customized emulsions and binders.
- Comprehensive in house laboratory facilities for quality control and technical support, including testing of stability, breaking behaviour, adhesion, and in service performance.
- Experience working with public road agencies and construction companies, providing on site technical assistance and optimizing solutions for real world pavement applications.

Stage of development

Under development

Sustainable Development goals

- **Goal 13: Climate Action**
- **Goal 15: Life on Land**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 11: Sustainable Cities and Communities**

IPR Status

No IPR applied

IPR Notes

Partner Sought

Expected role of the partner

The partner sought must be a small business specializing in the production of high performance asphalt emulsions,

with a strong focus on sustainable pavement maintenance and recycling solutions.

The partner should:

Possess solid experience in the design and manufacture of both conventional and modified asphalt emulsions, ideally oriented toward recycling applications and environmentally friendly surface treatments.

Have the capability to formulate project specific emulsions—such as binders with rejuvenating agents, low emission components, or enhanced compatibility with reclaimed asphalt pavement (RAP)—and to produce them at pilot or industrial scale.

Operate an in house laboratory equipped for advanced quality control and technical support, including the capacity to conduct stability, breaking behavior, adhesion, and in service performance testing.

Experience collaborating with public agencies and construction companies is highly valued, particularly in providing on site technical assistance, optimizing formulations, and ensuring that products perform reliably under demanding climates and traffic conditions.

The ideal partner will demonstrate a strong commitment to circular economy principles and contribute actively to the development, validation, and deployment of sustainable asphalt technologies within the project.

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 50 - 249**
- **SME <=10**
- **SME 11-49**

Call Details

Framework program

Access to finance

Call title and identifier

Eurostars Call 11 for projects

Submission and evaluation scheme

Anticipated project budget

Coordinator required

Yes

Deadline for EoI

1 Sep 2026

Deadline of the call

10 Sep 2026

Project duration in weeks

36

Web link to the call

<https://www.eurekanetwork.org/programmes-and-calls/eurostars/eurostars-call-for-projects-september-2026/>

Project title and acronym

Dissemination

Technology keywords

- **02007002 - Building materials**
- **02002002 - Coatings**
- **02006001 - Materials, components and systems for construction**
- **02007014 - Plastics, Polymers**
- **02008005 - Road Transport**

Targeted countries

- **World**

Market keywords

- **08001015 - Other speciality materials**
- **08001023 - Other chemicals and materials (not elsewhere classified)**
- **09006 - Mining (non-energy related)**

Sector groups involved

- **Construction**