

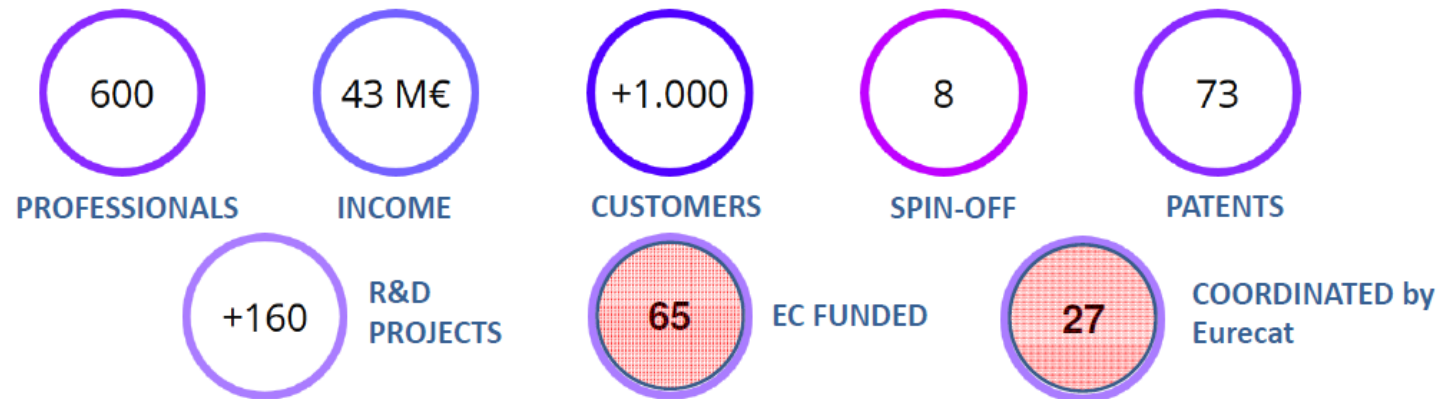
SusChem 2017 Brokerage Event

— Material feedstock processing using Plasma MW SPIRE-02

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The logo for eurecat, featuring the word "eurecat" in a bold, lowercase, sans-serif font. The "e" is purple, and the "u" is blue. The "r" is blue, and the "e" is purple. The "c" is blue, and the "a" is purple. The "t" is blue. A small purple dot is positioned below the "t".

- RTO private non-profit foundation.
- Result of the merging process of different Technology Centers (among others ASCAMM, CTQC, BDIGITAL...), started in 2015 and still ongoing.



- Homogeneous & Asymmetric Catalysis.
- CO2 Transformation.
- Membranes and Encapsulation.
- Photonic monitoring of corrosion.
- PHOTOCATALYSIS and PHOTOCHEMISTRY.



SPIRE Topics INTEREST

- **DIGITAL partner in SPIRE Projects**

SPIRE 03 – 04 – 05 – 06 - 10

- **Data Value Chain Management** (Collection-Information-Knowledge-Intelligence).
- **Intelligent resource management and decision support.**
- **Interoperable real-time platforms based on AI, machine learning, data analytics & data management.**

- **ULTRASOUNDS applied to**

SPIRE - 02

- **Ultrasonic Micromolding (USM).**
- **Polymers Thermoforming**
- **Molten Metal (Al) degassing**

ultrason
Innovative Ultrasonic Solutions

Spin-off SME

DoSHoRMAT



- **MW & Plasma**

SPIRE - 02

- **Generation of hydrogen.**
- **Decomposition of CO2 and CH4 (biogas plants)**
- **Electronic PCB, Composites recycling. SPIRE - 10**

- **COMPOSITES**

- **RTM (faster resin curing)**
- **Thermoforming (as preheating step)**



- **REVALORIZATION OF FIBERS** obtained from **COMPOSITES RECYCLING** processes.

SPIRE - 10

SPIRE-02: Application of Microwave Plasma Torch in gas fired industrial furnaces.

Developing microwave plasma torch add-ons for continuous industrial processes to be integrated into existing gas-fired industrial furnaces.



Atmospheric MIP
plasma torch

- Processing of material feedstock using plasma torch as a convective heating source complementing gas heating.
- Secondary functionality: surface treatment.
- Preheating source in industrial furnaces.

At present, Eurecat own self-designed and self-manufactured **Microwave induced plasma generators** (circular type) providing a torch-like plasma.

TRL4, technology have been validated in lab (200 cm³, 300-700 °C, low consumption magnetron of 1-1,3 kW) → **TRL6 Industrial Demo.**

- **Gas consumption will be reduced at least by a 20%**, mainly due to the new heating plasma source but also enhanced by a plasma side effect of increasing the gas combustion efficiency.
- **Reduction of CO₂** and industrial air pollution emissions (NO_x and CO).
- **Suitable for connection to the electricity grid** - potential for integration in a renewable energy grid.
- **Solutions compatible with existing production lines** for a wide adoption.

The solutions may be modular applied to **different sectors**.

ORGANISATION	ROLE
eurecat	Development of add-ons unit with plasma torch.
¿RTO?	Industrial process (chemistry, metallurgy, ceramics)
¿RTO?	Integration in fluctuating electricity stream
¿SME / LE?	Equipment / furnaces manufacturer
¿SME / LE?	Industrial demo
¿SME / LE?	Industrial demo

Contact details for project idea(s) in SPIRE topics :

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eurecat!