

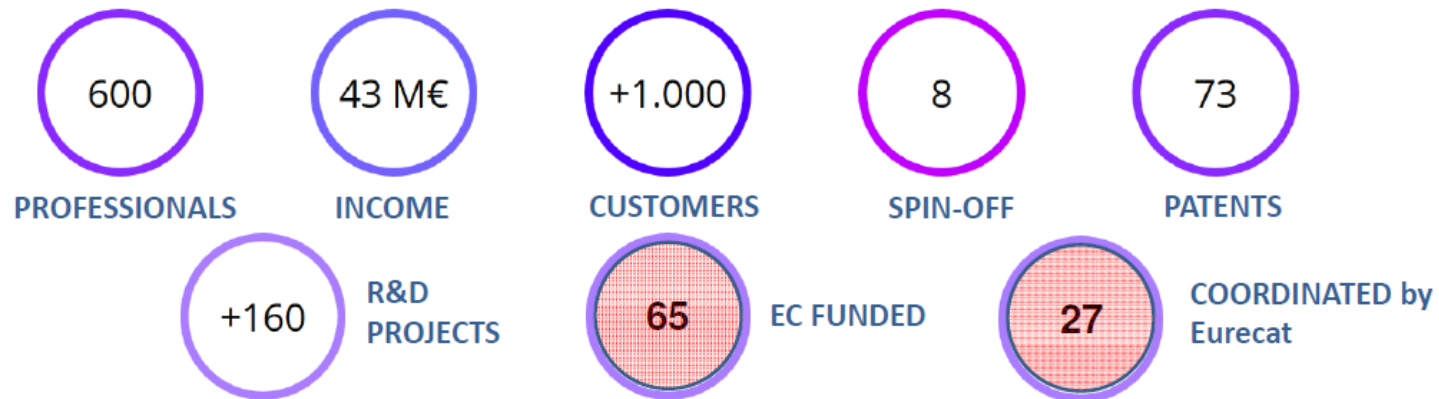
SusChem 2017 Brokerage Event

— 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 letters "e", "u", "r", "e", "c", and "a" are in a dark blue color, while the "t" is in a purple color. 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**

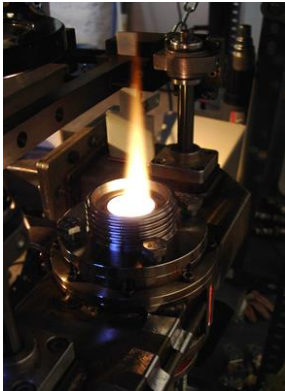
- **RTM (faster resin curing)**
- **Thermoforming (as preheating step)**

- **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!