

PLAS CARB

Industry and research collaborating to combine Anaerobic Digestion (AD), innovative low temperature microwave plasma processing and sustainable engineering using leading edge control of carbon morphology and Purification techniques to produce high value graphitic carbon, the »renewable PlasCarbon«, and »RH₂«.

The PlasCarb consortium is composed of seven partners from five European countries, whose complimentary expertise is enabling the required results to be successfully delivered.

Partnership



Centre for Process Innovation Limited



Cambridge Nanosystems



National Centre for Scientific Research



Fraunhofer Institute for Building Physics – IBP



GAP Waste Management



Geonardo Ltd.



Abalonyx

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PLAS CARB



Innovative plasma-based transformation of food waste into



high value graphitic Carbon and renewable Hydrogen »RH₂«



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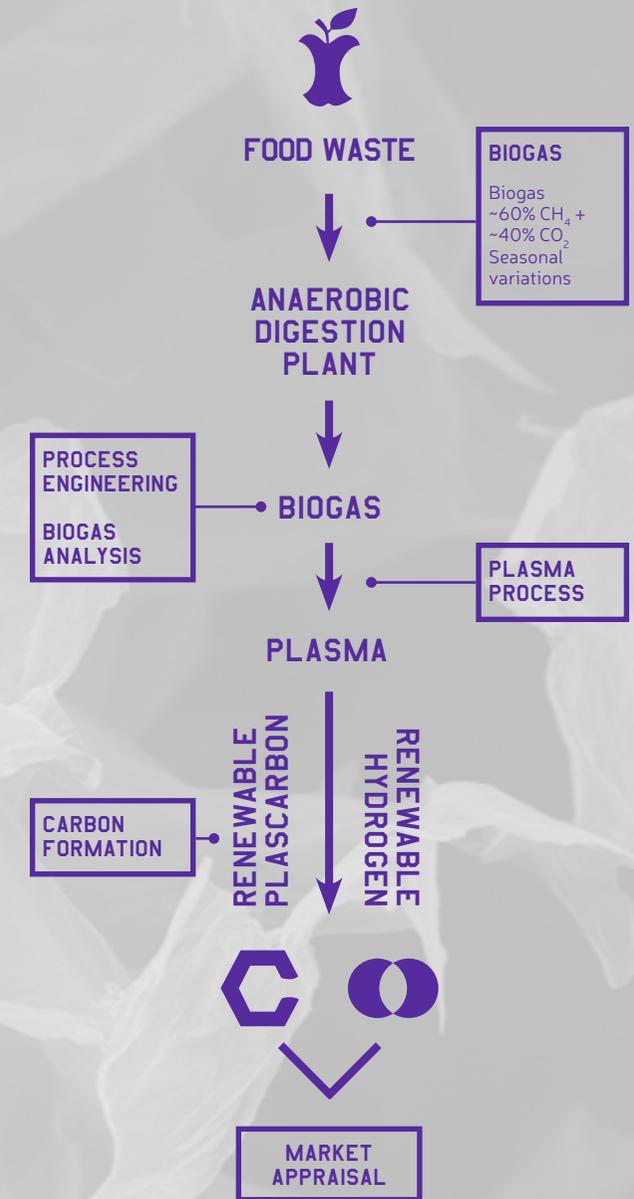
PLASCARB ACHIEVED

PlasCarb transforms food-waste, from a catchment area of 35 miles, into biogas and upgrades it to bio-methane. From this, an innovative low-energy microwave plasma reactor generates renewable PlasCarbon and renewable Hydrogen »RH₂«. The entire process flow is encompassed by life cycle analysis »LCA« which analyses that the approach is sustainable and taken beyond Best Available Technology. The quality and economic value of the renewable PlasCarbon and »RH₂« are currently being optimised using high quality research and industrial process engineering.

VIABILITY ASSESSMENT

Accessible on the PlasCarb web page, this portal allows potential users a preliminary scaling of the PlasCarb technology. The inbuilt engine provides a quick estimate about the feasibility of the PlasCarb process in several environments »scale-up, scale-down, location, etc.«. Based on a range of custom entry parameters and underlying case studies, a bespoke scenario will be generated showing potentials of the PlasCarb technology in a given environment. PlasCarb will then be able to contact the interested user to approach a potential technology adoption.

THE PLASCARB PROCESS



POTENTIAL APPLICATIONS FOR RENEWABLE PLASCARBON

PlasCarb produces renewable PlasCarbon – nanographitic carbon particles composed of graphene multilayers. While the quality of the renewable PlasCarbon is still being researched and optimized by PlasCarb partners, its economic value is expected to be very high. The world graphite market is forecasted to grow at a CAGR of 3.7% from 2014 till 2020. PlasCarb offers a sustainable contribution to this growing demand by producing renewable PlasCarbon from food waste. Potential applications include but are not limited to:

- » **Inks for 2D and 3D printing, printable electronics**
- » **Composites in rubber, plastic, etc.**
- » **Electrodes, batteries, capacitors**



POTENTIAL APPLICATIONS FOR »RH₂«

PlasCarb has the potential to generate »RH₂«, albeit at low mass flow rate and currently at long payback. The ability to sustainably produce this element has added economical value, as nearly 96% of hydrogen is produced from fossil fuels. Predicted global demand in 2020 is 324 million m³ worth 125 billion EUR. Hydrogen is used in significant quantities by industry, applications ranging from ammonia production to petroleum refining and electronics. Hydrogen is increasingly recognized as a potential future transport fuel for a low carbon economy »including use in the emerging fuel cell technology«.