1. ABOUT US

APPLIED NANOPARTICLES S.L. (AppNPs) is a spin-off of the Catalan Institute of Nanotechnology, the University Autònoma of Barcelona and the Institut Català de Recerca i Estudis Avançats. Among is co-founders are scientist from these institutions, international experts on RRI (Responsible Research and Innovation), experts in e-communication (see for example our tweeter account "biogasplu") and experts in business development and technology transfer as Nanonica (a swiss based company fostering nanotechnology developments). AppNPs has the office address in Barcelona and the laboratory in the campus of the UAB.
The main current objective of AppNPs is the commercial exploitation of the patent application "biogas production", in the U.S. and Europe, consisting of the use of specially designed iron oxide based nanoparticles as additives to optimise the production of biogas. AppNPs also develops projects on the production, characterization and commercialization of model nanoparticles, as well as consulting work related to other possible industrial uses of nanoparticles. In this regard, AppNPs is a nanoparticle engineering studio which currently explores the use of iron oxide based nanoparticles in applications such as enhancing the bacterial activity in anaerobic digesters, also open to other, such as catalysis, environmental remediation, energy storage, drug, imaging contrast agent, bacteriostatic and bactericide substance or hyperthermia.

2. TECHNOLOGY

APPLIED NANOPARTICLES develops the production, characterization and commercialization of nanoparticles, as well as consulting work related to industrial uses of nanoparticles. Our main technology consists on the use of Iron oxide based nanoparticles as additives to optimize the production of Biogas.

Our business development is based on the principles of Responsible Innovation, focusing on the design of nanoparticles and low energy processes, low toxicity, waste minimization and reduction of pollutant emissions. Therefore, AppNPs, following the example of Biogas+, designs advanced applications from accessible materials and processes.

APPLIED NANOPARTICLES.SL also, intends to establish partnerships with production of nanomaterials that they have the capacity to produce at industrial scale materials designed by our company. In this sense, the activity of AppNPs is focused on the design and technical feasibility studies for industrial scaling.

APPLIED NANOPARTICLES devotes significant effort to education, public debate and public awareness of nanotechnology, using virtual tools (such as nanowiki, reference website and twitter account with more than 4000 followers), but also by hosting Master and PhD students for specific technical training. While keeping their previous research and training activities currently is participating in the Ist Fòrum Internacional d'Educació i Tecnologia (FIET) and the Ile-de-France Summer School on Nanotechnology among other.

3. MILESTONES

- In 2011 the patent application PCT/EP2012/054022 "biogas production" at national level, in EEUU and Europe.

- In 2011 funding support from Fundación Bill & Melinda Gates

- In 2013 Award from Secretaría General Iberoamericana SEGIB (2013)

- 2013 Maturation Award del Fondo de Emprendedores, and also in 2014 Incubation Award for the third call.

- Among the costumers of AppNPs there is the Barcelona City Council, CosmoCaixa –the science museum-, researchers from different EU laboratories and other technology-based companies.

4. BIOGAS+

Biogas, mainly methane, is a renewable natural energy resource obtained from the decomposition of organic matter in an anaerobic digestion process. This gas is produced in digesters, tanks where biomass (urban waste, manure, feed residues, etc.) is deposited and subjected to the action of bacteria so that it degrades and transforms. The microorganisms break down organic matter to obtain biogas and fertilizer. Now a team of researchers from the company Applied Nanoparticles, a spin-off from the Catalan Institute of Nanoscience and Nanotechnology and the Autonomous University of Barcelona (Spain), has achieved a 200% increase in biogas production by introducing iron nanoparticles in reactors, improving the quality of fertilizer and making the process more energy efficient.

Application of nanotechnology to optimise biogas production. The controlled introduction of iron oxide nanoparticles in the processes of organic waste treatment can triple the production of biogas. Using iron oxide nanoparticles improves biological efficacy and can be specifically designed for each client/process. Other benefits of the product include a reduction in the amount of residual material and improved stability, optimising the treatment process and transport.

http://www.fondoemprendedores.fundacionrepsol.com/en/projects/biogas-plus-increased-production-biomethane-iron-nanoparticles-organic-waste