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## PARTNERSHIP PROFILE FORM (PROJECT SEARCH)

### Coordinator Contact Data

**Organisation Name:** Centre of Excellence Materia Nova in the Université de Mons-Hainaut

**Type of organisation** Non-profit organization

**Organisation Size**

**General Activity** Research

**Contact Person:** The first contact will be made throughout the Spanish Energy Innovation Unit

**E-Mail:** info@uieienergia.org

**Telephone:**

**Address:** **Country:** Belgium

**Website:**

**Type of entity:**

Research Center

SME

Big Company

R&D Institution

University

Other

### Company Expertise

#### **Entity experience on participation in R&D European, national or regional projects**

Established by the Faculté Polytechnique de Mons and the Université de Mons-Hainaut - Belgium, the Centre of Excellence Materia Nova is a non-profit organization having the following objectives:

- to carry out applied scientific research for industry and to carry out tests and analyses of all the materials used or produced by these industries;
- to make its knowledge, expertise and equipment available to businesses in the form of technological guidance;
- to aid the dissemination and development of results of research which correspond to its area of expertise (technology watch);
- to carry out other activities, in particular training programmes, which will contribute to the performance of the above objectives.

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### **Added value (of having your organisation as Project Partner)**

Our main competences are in the field of:

#### **Bio-polymers**

Materia Nova synthesizes blends and formulates polymers, bio-sourced and bio degradable plastics using e.g. reactive extrusion technologies from lab scale (1 g/h) to pilot scale (300 kg/h). Example: Materia Nova has developed new composite materials based on polylactide (obtained from sugar beet or maize starch) and gypsum or clay with excellent mechanical properties.

#### **White bio-technologies**

The activities are concentrated on the manufacture of materials from renewable sources through the use of biological systems such as enzymes, bacteria or fungi.

#### **Biodegradation**

Materia Nova is competent to carry out experiments for the evaluation of both bioplastics biodegradation in various media (soil, compost, water) and ecotoxicity towards plants, worms or algae. Moreover, Materia Nova is an approved centre (OK-Compost label) by AIB-Vinçotte for the evaluation of compostability and biodegradation of packaging in accordance with the EN13432 method.

#### **Polymer nanocomposites**

These new materials consist in a homogeneous dispersion of nanoparticles (layered clay or needle-like clay, carbon nanotubes, polyhedral oligosilsesquioxanes or POSS, oxides, etc.) within a polymer matrix.

#### **Plasma surface treatments**

Materia Nova has developed new processes using strongly ionised plasmas in order to improve the quality of the thin films deposited on complex substrates. This method of ionisation is based on a new property owned electricity supply capable of generating stable electrical impulses with very high instantaneous power.

#### **Development and evaluation of anticorrosion treatments**

Various alternatives have been proposed to replace hexavalent chromium. These are in particular treatments based on trivalent chromium, cerium, but also zirconium and/or titanium-based treatments, coatings based on self-assembled single films, and silicon-based compounds.

#### **Development of chemical gas micro-sensors**

The principle of operation is the variation in electrical conductivity of a semiconductor film due to doping by the gases adsorbed at its surface. The useful signal is a variation of electrical resistance between two electrodes on which the sensitive film is deposited.

#### **Organic semiconductors**



Materia Nova works on transparent organic electroluminescent diodes, photovoltaic cells and other organic optical electronic devices.

**Topics/Areas/ R&D Programs of interest**

FP7 new material related areas, PV.

**Other information:**

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