



CRM GROUP

Advanced Nanocoatings & Energy

The **Advanced Nanocoatings & Energy** department develops cutting-edge metals for **energy related applications**. Initiated to control the energy interaction between materials and light, the Light & Energy Management concept has been extended to a variety of applications, including Photovoltaic, Fuel Cells or Solid-State Lighting (called Energy Management).

Since 2004, CRM Group designed and developed for industry **eco-innovative metallic surfaces** which reduce energy consumption, harvest or convert energy. Bridging academic science and industry, CRM Group elaborates sustainable products and up-scaletechnologies which contribute to **value creation** in the Walloon Region.

Centred on Material & Surface Sciences, Optics, Solid-State Physics, Coating Technologies, our expertise addresses **several markets** and is efficiently integrated among CRM Group organisation, a reference research centre in metal science.

Located on the Liège University campus (Sart-Tilman), CRM Group interacts with most of local scientific academies and actively participates to Regional and European collaborative programs.

“To develop environment friendly processes & products for a sustainable future is our priority”

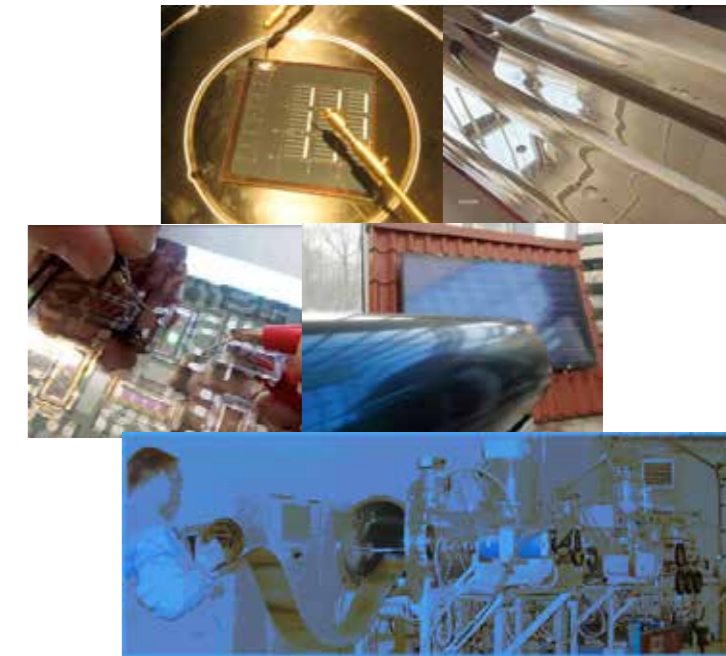
CRM Group

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Your partner in ...

- ... Metallic Surfaces for Solar Technologies
- ... Radiation Management
- ... Energy Conversion & Storage
- ... Solid State Lighting
- ... Steeltronics





RADIATION MANAGEMENT

Electromagnetic radiation drives energy. Using surface coating CRM Group tunes energy exchanges between irradiated materials and their environment. **Light reflectors, solar selective absorbers** and **heat shields** are examples of products that we developed and transferred to production plant.



SOLID STATE LIGHTING

CRM group is developing advanced metallic substrates for optoelectronic applications in solid state lighting and display in the future.



SOLAR TECHNOLOGIES

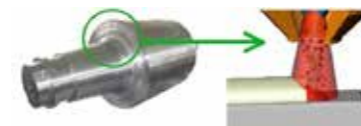
Thanks to its expertise in wet and dry coatings, CRM Group elaborates **innovative electrical metals surfaces** able to support 2nd generation PhotoVoltaic (PV) technologies.



Up-scaling on the roll-to-roll vacuum pilot line eases and reduces the risks of industrialisation for customers. Complementary, CRM Group is involved in atmospheric processed Dye-Sensitized Solar Cells integration.

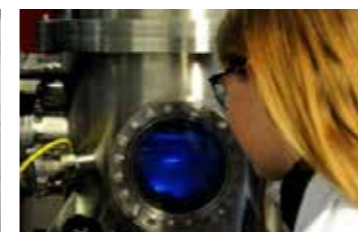
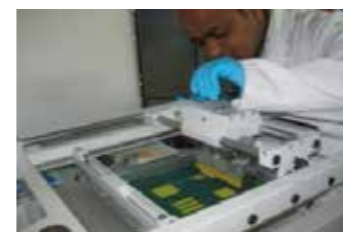


The involvement in solar technologies was initiated in 2006 with Solar Thermal applications. In this frame CRM Group developed selective coatings (high solar absorptance, low emittance) for domestic hot water production and transferred them to mass production. High temperature resistant **solar coatings** are among our current interest.



ENERGY CONVERSION SYSTEMS

Solar to electric, electric to chemical or better direct solar to chemical energy conversions is foreseen to unlock the renewable energy spreading. In this field, CRM Group elaborates new materials for **Fuel Cells**, such as chemically resistant metallic bipolar plates, and initiated activities on solar **Photolysis**.



STEELTRONICS

Structured coatings achieved by using screen printing or inkjet can turn metals into ideal substrate for SMD (Surface-Mounted Devices) smart systems. The **"steeltronic"** concept CRM group introduced in 2006 allows to control electricity or light flow paths on metallic surfaces. With this technology, CRM Group participates to the development of **printed electronics**.

