



# UCL - IMMC / Materials and process engineering (IMAP)

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## Description

The objective of the pole Materials and Processes Engineering (IMAP) is to develop an integrated and multidisciplinary research of the full life cycle of materials, from chemical processing to recycling, including the processes control and materials characterization. An integrated view of the entire life cycle of a product is a necessary prerequisite to the establishment of effective sustainable development strategies. The necessity to address performance in its environmental, economical, technical, social and even aesthetical levels is now universally admitted. This is called life cycle engineering. The best product to meet a given need is that which may be obtained with low-cost and green processes, and which may be inspected, replaced and easily recycled, allowing an as clean as possible use. We talk about green, sustainable, lightweight, recyclable, biodegradable, non-toxic, clean materials. We talk about eco-efficient, clean, economical processes. The researches of the IMAP pole aim at:

improving the fundamental knowledge in the field of process engineering and inorganic materials. Application areas include in particular the effluent treatment, development of lightweight structural inorganic materials, process optimization, the study of the mechanical properties and the durability of inorganic materials, their manufacturing and shaping processes, the recycling and refining of metals, the processes of organic chemistry and petrochemistry, excluding polymers  
creating an integrated research methodology to address the issue of sustainable development as described above, based on the expertise of all members of the pole in order to implement the life cycle engineering, and proposing strategies to select materials and processes.

These investigations are carried out in close interaction with the Walloon and European industry. From an educational point of view, the IMAP pole is closely associated with the Bachelor's program of Engineering Science, orientation "Applied Chemistry and Physics",

and Master's program "Chemical Engineering and Materials Science". It also contributes to Masters programs of "Physical Engineer" and "Mechanical Engineer".