Carbon Dioxide Capture and Re-Utilization

For the first time in the history of the world the weather is changing rapidly, mainly because the human activity. Since the beginning of the industrial revolution, scientific community has warned on the effect of the emission of greenhouse gases (GHG) to the atmosphere producing an increase of Earth’s temperature. Nowadays, the amount of GHG surpasses 350 ppm and carbon dioxide is the main compound emitted into the atmosphere.

International government agreements are being subscripted in order to reduce the GHG emissions. Nowadays, there is a lot of research in the development of new processes and materials to capture or sequester CO₂. Carbon capture can be done side large CO₂ generation industries (such as coal or petrol power plants), transport for its re-use or proper storage, without pullulating. The group main research focuses are:

- Chemical conversion into chemical feedstocks and fuels;
- Innovation in CO₂-chemical conversion processes: catalysis, artificial photosynthesis, photocatalysis, electrochemical reduction;
- Development of materials for CO₂ retention and capture;
- Membrane technology for CO₂ sorbents;
- Separation of gas mixtures where CO₂ is a constant component;
- Physical and chemical interactions between CO₂ and new sorbents.
Capture and re-utilization of carbon dioxide

CO₂ Capture

CO₂ production

Enhanced oil recovery

Reuse

Geothermic Flow

CO₂ supercritic

Storage

Conversion

Propylene

Styrene

Methanol

Amine

Polymeric

Asymmetric

Separation Technologies

Ionic Liquids

Amines