

**CEA**  
 French Alternative Energies and Atomic Energy Commission  
 Marcoule, France



## ABOUT

For nearly 50 years, CEA Marcoule has been in charge of the development of efficient industrial separation processes used to recycle uranium and plutonium in the La Hague reprocessing plants. More recently, it has been involved in the studies on minor actinides separation following the 1991 French Act long lived-nuclear waste.

Its experience in the field of recycling processes of valuable materials from waste guarantees maximum industrial efficiency at low production cost, low secondary waste production and low environmental footprint. Moreover, the success of these R&D studies makes CEA Marcoule a major player worldwide in minor actinide and fission products chemistry, including among other rare earths and platinum group metals.

CEA Marcoule leadership in these areas has gradually directed its activities toward the competitive recovery of strategic metals.

The centre's dynamism, through many European and international collaborations, is also valuable for the training of young foreign researchers who find here unique tools to address all of these issues.

## EXPERTISE

The CEA Marcoule knowhow is based on:

- Its knowledge in solution chemistry of numerous elements of interest existing in spent nuclear fuel like actinides, rare earths and platinum group metals
- A proven separation process development method based on an integrated approach of the core process, head-end and ancillary steps, up-scaling with a strong coupling between modelling and experience
- Large type of separation processes like solvent extraction, solid separation, coprecipitation...
- Transversal skills (multi-scale modelling, expertise in analysis)
- Multiple and high-performing experimental means (experimental and analytical laboratories, test-loops, modelling and simulation platforms)
- Ecoconception approach for minimising environmental footprints

## FACILITIES & SERVICES

With three research facilities, CEA Marcoule is fully equipped for performing studies from the lab scale up to the process feasibility demonstration at small pilot scale (around 1l/h) covering:

- Extracting molecules design (synthesis, molecular modelling)
- Metals recovery and recycling (tests from batch to continuous)
- Efficient technology development
- Process modelling and simulation (process code for flowsheet design)
- Process instrumentation



## MORE INFORMATION

Website: [www.cea.fr](http://www.cea.fr)

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