

Technology Offer

CSIC/LR/027

## Easily recoverable adsorbent micro-nanoparticles for decontamination of aqueous media



**Catalytic decontamination and recovery of organic compounds of industrial aqueous media using adsorbent particles of a zeolitic imidazolate metalorganic network capable of self-aggregating to generate floating membranes.**

### Intellectual Property

PCT application filed

### Stage of development

Technology available for demonstration at laboratory level

### Intended Collaboration

Licensing and/or co-development

### Contact

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### Market need

Nowadays, the presence of contaminants in aqueous media is a problem that society and industry must address. Currently, most of the methods generally employed involve recovery or filtration processes with different sieve sizes, where the smaller the contaminant size, the more expensive it is the process. Thus, when dealing with the separation of molecules or metal ions, the use of molecular sieves that can trap the contaminant in their interior is preferred, being the recovery of the adsorbent particles from the aqueous medium their main limitation.



### Proposed solution

A method has been developed for the preparation of molecular sieve-type adsorbent particles that self-organize to form floating films that can be used in the removal of organic contaminants in aqueous media. This conformation of floating interfaces within the aqueous medium allows the simple and efficient removal of the particles acting as adsorbent or catalyst, even when the particles of the used adsorbent solid are in the nanometer range

### Competitive advantages

- The recovery cost of the adsorbent micro-nanoparticles is reduced compared to the one of usual recovery processes in aqueous media since it does not require the use of centrifugation systems.
- It can be a fast contaminant removal system, comparable to the ultrafiltration process, but without requiring external energy input.
- Floating membranes can also present catalytic activity against some pollutant dyes.