

## Enantioselective chiral material for asymmetric catalysis

New chiral zeolitic material enriched in one of the crystalline enantiomeric forms of the -ITV structure. This material has an unprecedented capacity for enantioselective discrimination in asymmetric catalytic processes.

Industrial partners from the pharmaceutical or fine chemistry industries are being sought to collaborate through a patent licence agreement.

### An offer for Patent Licensing

#### An answer to the challenge of pharmaceutical industry

One of the main challenges of the pharmaceutical industry is to develop solid materials capable of discriminating between enantiomers of chiral compounds through asymmetric adsorption or catalysis processes.

CSIC researchers have developed a new chiral zeolite material called GTM-4. This material is based on the -ITV chiral structure and is enantio-enriched in one of the enantiomeric polymorphs. It is obtained from pseudoephedrine and/or ephedrine derivatives and shows a high enantioselective catalytic activity, reaching values of enantiomeric excess of up to 60%.



Synthesis of pharmaceutical chiral compounds with zeolitic catalysts

#### Main innovations and advantages

- Its synthesis can be industrially scaled since it is based on compounds and reagents commonly used in the chemical and pharmaceutical industry.
- Natural chiral precursors are used available in the two enantiomeric forms (1S,2S) and (1R,2R)-pseudoephedrine or (1R,2S) and (1S,2R)-ephedrine, to which benzyl groups are attached.
- Due to the great versatility of the structure-directing agent used, it can be prepared from ephedrine derivatives, of reduced cost and easy industrial implementation.
- A chiral organic compound easy to prepare is used as structure-directing agent.
- This new crystalline microporous material is used as an asymmetric catalyst in reactions with chiral organic compounds, being of great interest to the chemical or pharmaceutical industries.

#### Patent Status

Priority patent application filed suitable for international extension

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