

BIOCOMPATIBLE / BIODEGRADABLE SHAPE MEMORY MATERIAL

CSIC and the University of Mons have developed a biocompatible and / or biodegradable material with shape memory from commercial raws. This material has a double response to stimuli, and is capable of recovering its original shape.

Industrial partners are sought to collaborate through a patent license agreement to scale the product or its direct application in fields such as biomedical devices or packaging.

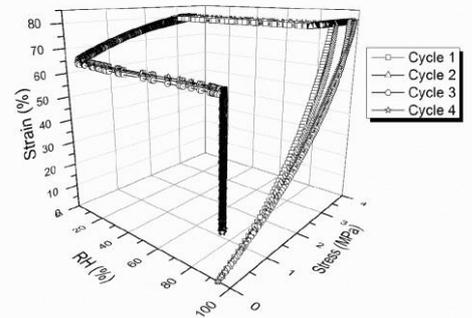
An offer for Patent Licensing

Shape memory polymers

The invention consists of a material that responds to a double stimulus and is capable of recovering its initial shape (shape memory).

Shape-memory polymers are stimulus-responsive materials able to change their shape by applying an external stimulus, such as temperature, light, humidity, pH, electric or magnetic field, etc. The shape-memory effect is not an intrinsic property of materials. Therefore, to show these properties, the materials require carrying out a two-stage process called “programming” and “recovery”, respectively. In the first one, during the “programming”, the material is deformed and fixed in a “temporary shape”. In the second stage, upon the application of an external stimulus, the material recovers its initial permanent “fixed shape”.

This material is obtained through the mixture of three raw materials that are crosslinked to obtain the product that presents these characteristics for applications in biomedical as well as packaging fields.



Humidity-mechanical cycles. 2D stress-strain cycles and 3D stress-strain-temperature cycles diagrams, at the top and at the bottom respectively.

Main innovations and advantages

- Shape memory material is easily obtained from commercial raws.
- Presents a double response to external stimuli.
- Biocompatible and biodegradable
- Many applications, from biomedical devices to the packaging field.
- Easy to obtain and competitively priced.

Patent Status

European patent application

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