Hokkaido Univ. Technology

Molded body and method for producing Polymer Crosslinked body

Laser irradiation enables reversible 3D processing of gels

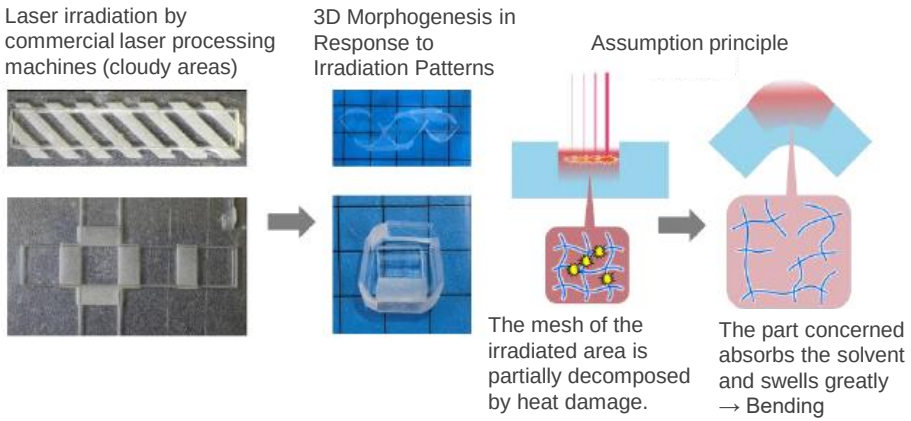
Overview

Hydrogel, which is one of the crosslinked polymers, is expected to be used as biomimetic materials because its hardness and water content are similar to those of living organisms. On the other hand, because of its flexibility, it is not suitable for general processing methods such as injection molding, drawing, and cutting. Therefore, methods of molding inside a mold or using a 3D printer have been devised. However, the former has a problem that it is difficult to prepare a mold and cope with complicated shapes, and the latter requires a long time for printing and is difficult to select a material.

To solve this problem, the inventor has found a molding method that can be obtained by spontaneous bending by laser irradiation of the gel surface and swelling of the cut part with a solvent. Since the bending is triggered by swelling due to the solvent, for example, if a hydrogel is used, it is possible to transform the shape from a flat portable shape to a shape meeting the purpose by supplying water just before use.

In addition, the present invention is most effective in a double network using water as a solvent, but the same phenomenon has been confirmed in an organogel such as rubber, and can be applied to any kind of gel.

Features・Outstandings



*As the patent has not been disclosed, if you have a request about the detailed manufacturing method and conditions, please contact us individually at the following inquiry counter.

Product Application

- Manufacture of wearable devices
- Manufacture of skin patch sheets and wound dressings
- Manufacture of vascular stents
- Manufacture of cell scaffold materials

Related Works

Scheduled to be updated from time to time

IP Data

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