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■ Researcher information

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Major

Materials Science, Polymer Chemistry

**HUMAN
ENVIRONMENTAL
SCIENCE**

Fabrics with
deodorizing ability

■ Research topics

Functional Polymer Materials for daily life

Keywords

Fabrics with deodorizing ability, Polymer gel, Polymer membrane

Contents

■ Overview (background, goal, detail)

1) Deodorization mechanism of fibers with deodorizing ability

The problem of the "odor" in a living environment came to be taken up in recent years. In our laboratory, the measurement and the mechanism elucidation are carried out for the deodorization properties of natural fibers, such as cotton and wool, mordant-dyed by dyes and copper salts.

2) Solute-selective swelling behaviors of polymer gels and application of polymer hydrogels to materials for daily life

The polymer hydrogels gel are prepared from water-soluble polymers, such as polyvinyl alcohol and polyethylene oxide. The obtained gels shows selective swelling for the kind of solute in the external solution, concentration, etc. The mechanism of these solute-specific swelling behaviors is elucidated. The application of the gels is considered as, for example, the water absorbency materials, such as a diaper, and actuators.

3) Solute-specific transport and sorption of polymer membranes

Polymer membranes are used in various fields, such as medical, industrial, and home uses. We continue the research on the polyvinyl alcohol membranes for a long time, and now investigate the selectivities of the membranes from viewpoints of purification living environment and ion-specific sorption.

4) Hygroscopicity of ultra-fine microfibers

■ Potential (applications, future goals)

Intellectual properties (Patents, computer programs), productization, publications and social/industrial contributions

Social contributions: Member of University-Industry Cooperative Research Committee (the 120th Committee on Processing for Functionality of Fibers and Polymers), Japan Society for the Promotion of Science (1990.9~present), Member of editorial-board for Journal of Home Economics of Japan, The Japan Society of Home Economics (2010.6~ present), Councilor, Society of Fiber Science and Technology, Japan (2010.6~ present)

Potential of social/industrial contribution

■ Joint research