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Student Research Project Report

Mark Chan, student recipient of the Foundation Student Research Award, reported on his Masters' Thesis research project on the "Surface Modification of Microporous Polypropylene Membrane by UV-Initiated Grafting with Poly(ethylene glycol) diacrylate." Chan says that he surface grafted the poly(ethylene glycol) diacrylate (PEGDA) through UV-initiated grafting onto a microporous polypropylene (PP) membrane to develop and control a moisture-sensitive porous structure. Based on the

concentration of the PEGDA grafting solution, as well as other variables, the pores of the membrane were filled to varying degrees with cross-linked PEGDA hydrogel, decreasing the pore sizes. Chan says that this decrease in pore size was highly dependent on the grafting degree, or weight add-on, of the grafted polymer. He says that the grafting degree can be controlled by altering various grating conditions. "The surface-grafted PEGDA is expected to swell significantly when exposed to moisture, through change in relative humidity, or from a liquid-borne pathogen, causing the pore sizes to decrease even further," he says. "This provides a microporous polypropylene membrane with improved hydrophilicity and moisture-responsive pores. The membranes will have varying levels of breathability based on the amount of moisture exposure. This will allow for a functional membrane that limits the transport of liquid-borne pathogens, while providing transport of moisture vapor away from the body."

The AATCC Foundation funds student research grants to encourage original research in textile design, materials, processing, and testing.

www.aatcc.org/foundation/grants/research

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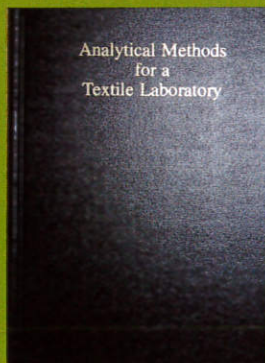
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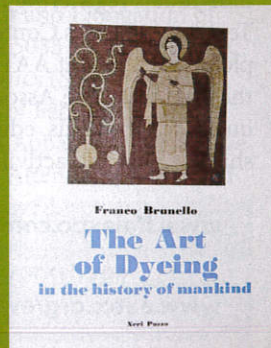
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For the Scientist



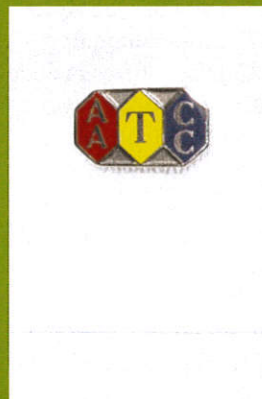
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For the Artist



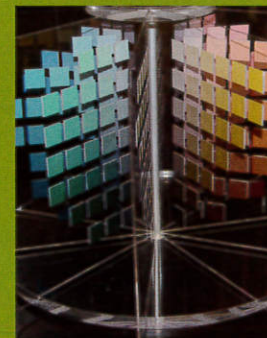
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