

Faculty Research Opportunity
U.S. Environmental Protection Agency
National Risk Management Research Laboratory
Cincinnati, Ohio

Project # NRMRL/STD-2008-01

*Designing Zeolite-Silicone Rubber Mixed Matrix Membranes to
Optimize the Manufacturing of Biofuels*

A faculty research project is available at the U.S. Environmental Protection Agency's (EPA) National Risk Management Research Laboratory (NRMRL). The appointment will be served in the Sustainable Technology Division (STD) in Cincinnati, Ohio.

The project involves the development and modification of software to realistically simulate the permeation of the solvent and solutes of a fermentation broth through zeolite-silicone rubber mixed matrix membranes under pervaporation. Once the validity of the software has been verified with empirical data, simulations of new zeolite-silicone rubber composites will be continued to collect an array of composites which separate alcohol from water most effectively. As a final step, the permeation properties of the most promising composites from the collection will be verified in the laboratory.

Applicants should be a faculty member of a college or university, have a strong background in the polymer sciences and membrane technologies, and formal experience running High Performance Computer simulations of liquids passing through membrane barriers.

This project is for 13 weeks during the summer quarter of 2008. The starting and ending date are moderately flexible. The faculty researcher will have steady interaction with others involved in this project, and there will be periodic team meetings. Accreditation for publications resulting from this project will be shared by all persons involved.

The program is open to all qualified individuals without regard to race, sex, religion, color, age, physical or mental disability, national origin, or status as a Vietnam era or disabled veteran. U.S. citizenship or lawful permanent resident status is preferred (but can also hold an appropriate visa status, however, an H1B visa is not appropriate). The participant must show proof of health and medical insurance. **The participant does not become an EPA employee.**

The participant will be selected based on academic records, recommendations, research interests, compatibility of background and interests with research programs and projects at NRMRL/STD, and the availability of funds, staff, programs, and equipment.

The participant must show proof of health and medical insurance. This can be obtained through ORISE.

The mentor for this project is Dr. Paul Harten of the Sustainable Technology Division. He may be contacted at harten.paul@epa.gov.

The Faculty Research Participation Program for NRMRL is administered by the Oak Ridge Institute for Science and Education. ***Please reference Project # NRMRL/STD-2008-01 when calling or writing for information.*** For additional information and application materials contact: EPA/NRMRL Research Participation Program, Attn: Betty Bowling, MS 36, Oak Ridge Institute for Science and Education, P.O. Box 117, Oak Ridge, Tennessee 37831-0117, Phone: (865) 576-8503 FAX: (865) 241-5219 or e-mail: betty.bowling@ornl.gov.

An application can be found at www.ornl.gov/orise/edu/EPA/app-gugrgpd.pdf