

### **230b Dendrimer-Ceramic Nanocomposite Membranes for Voc Recovery**

*Sukjoon Yoo, Robert L. Sherman, Daniel F. Shantz, Eric E. Simanek, and David M. Ford*

The focus of this research is the synthesis and evaluation of organic/inorganic composite membranes for the selective removal of volatile organic compounds (VOCs) from air streams. Using mesoporous alumina membranes with pore sizes ranging from 2 to 200 nm as supports, various triazine-based dendritic molecules were grown in a covalent manner from the porous surfaces to create the nanocomposites. The organic portion of the composite may be varied by increasing the number of generations of the dendrimer grown on the surface, by varying the length and functionality of the dendrimer terminating groups, and by using different spacer groups between triazine branches. The effects of these material variables on the permselectivity of the membranes was explored. In some cases, highly solubility-selective composite membranes were synthesized.