

Nanocomposite Coatings Reduce Wear over Ten Times in Pump Parts

The moving steel vanes in hydraulic pumps must withstand thousands of hours of use while maintaining low wear and friction. ORNL researchers have been working with Eaton Corporation, Greenleaf Corporation, and Ames Laboratory to develop and test nanocomposite coatings with aluminum-magnesium-boride matrices that contain hard particles of titanium diboride. Recent ORNL wear tests on experimental $AlMgB_{14}/TiB_2$ nanocomposite coatings produced by Eaton Corporation's research center in Southfield, Michigan, show that under comparable conditions, the novel nanocomposite coatings wore over ten times less than the non-coated steel vane. This project is entering Phase II in which the coating process will be scaled up to a commercially-viable level. *Contact Peter Blau, 574-5377, blaupj@ornl.gov*