

Separation of Metal and Polymer in Composite Material for Recycling

Numerous composite products such as hoses, tires and cables, in which are used in a polymer matrix for reinforcement, are widely used in different aspects of technology and daily life. However, so far there has not been any method for recycling these products, being buried in landfills. In the AIST Chubu-Center a new process has been developed in which the metal surface is heated by induction heating, separating it from the polymer matrix. By introducing this method, metals of any complicated shape can be separated from the matrix with little consumption energy and at a high speed, regardless of the material being processed.



Separation of components in a car-window-seal composite by induction heating

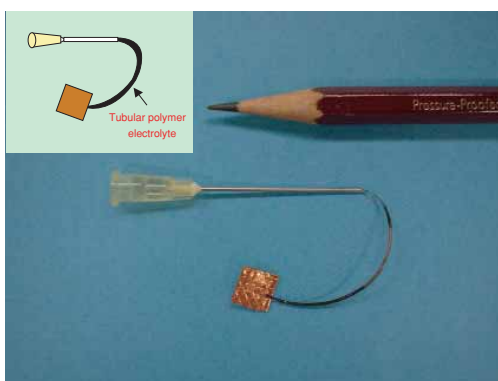
Kazuo YASUE
 Institute for Structural and
 Engineering Materials
 e-mail:
 k.yasue@aist.go.jp
 AIST Today Vol. 2, No. 6
 (2002) 13

Energy Science & Technology

Micro-Tubular Fuel Cell

A New Model of Fuel Cell for Mobile Applications

A new model of fuel cell comprising micro-tubular polymer electrolyte membrane and catalyst layers attached inside and outside of this tube is proposed. This enables a compact fuel cell, of high active surface to volume ratio design with leakage-proof fuel supply as well as flexible system configuration. The anode catalyst is Pt-Ru alloy loaded on carbon fibers, and the cathode catalyst is Pt chemically deposited on the surface of micro-tubular perfluorinated ionomer membrane. Using methanol with sulfuric acid in the anode compartment and air in the cathode compartment, the micro-tubular cell attained 0.9 mW cm^{-2} power, operating at ambient temperature and pressure.



Experimental model of a micro-tubular fuel cell

Tatsuhiko OKADA
 Research Institute for
 Green Technology
 e-mail:
 okada.t@aist.go.jp
 AIST Today Vol. 2, No. 6
 (2002) 11