

commercial evaluation are just becoming available. The scope of this workshop report is to identify those applications where this class of materials as currently understood or as envisaged to be available in the future might find utility. Preference was paid to where new markets would open up as opposed to those markets where introduction of conducting polymers would have to displace current technology. Relatively poorly conducting materials suitable for electrostatic charge dissipation are emerging. Important as these applications are this Study Group has chose to avoid development types of projects requiring these types of materials and focus on a longer term prospects for conducting polymers.

JUSTIFICATION

Polymers are one of many important materials with applications ranging from low to high technology. These applications have been developed over many years of intense research and development activities both from a scientific research and business marketing points of view. Due to the wide range of properties exhibited by polymers, this work has shown large number of ways polymers can be used. New applications often result form combining properties of blended (composites etc) materials or by manipulation of pure materials. In some instances polymers have replaced exiting materials, while in other instances whole new applications and industries have been developed.

Conducting polymers now introduce new phenomena to the polymer property repertoire i.e., control of electronic and ionic transport. By combining ion and electron transport to a polymer's general ease fabrication at moderate conditions (in contrast to the such conditions for metals and ceramics) a new class of materials with potential applications in electromagnetic interference shielding (EMI), resistive heating, sensors (chemical, pressure, temperature), batteries, solid state electronic or electrooptic devices, thermoelectric devices, ferromagnetic materials as well as testing concepts associated with the Holy Grail of molecular electronics are hoped to emerge.

STATUS

A wide range of conducting polymers are presently know. These include intrinsic (e.g., (SN)_x or pyropolymers) conducting polymers or those which must be doped (e.g., (CH)_x, polypyrrol). Evaluation for potential applications are limited by the availability and stability of these substances as well as their ability to be suitably fabricated. Very recently, and most notably at this meeting, a few cases where conducting films, fibers, composites, latex and moldable resins based on conducting polymers have been reported. Control of morphology and processing, however, are