

conducting polymer

Polymeric material that exhibits bulk electric conductivity.

Note 1: See also conductivity.

Note 2: The electric conductivity of a conjugated polymer is markedly increased by doping it with an electron donor or acceptor, as in the case of polyacetylene doped with iodine.

Note 3: A polymer showing a substantial increase in electric conductivity upon irradiation with ultraviolet or visible light is called a photoconductive polymer; an example is poly(*N*-vinylcarbazole) (see also photoconductivity).

Note 4: A polymer that shows electric conductivity due to the transport of ionic species is called an ion-conducting polymer; an example is sulfonated polyaniline. When the transported ionic species is a proton as, *e.g.*, in the case of fuel cells, it is called a proton-conducting polymer.

Note 5: A polymer that shows electric semiconductivity is called a semiconducting polymer (See also semiconductor).

Note 6: Electric conductance of a non-conducting polymer can be achieved by dispersing conducting particles (*e.g.*, metal, carbon black) in the polymer. The resulting materials are referred to as *conducting* polymer composites or solid polymer-electrolyte composites.

2004, 76, 898