

conducting polymer

Polymeric material that exhibits bulk electric conductivity.

Notes:

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

Source:

PAC, 2004, 76, 889 (*Definitions of terms relating to reactions of polymers and to functional polymeric materials (IUPAC Recommendations 2003)*) on page 898