

Polystyrene is one of the major thermoplastics with a high global demand ranking behind polyethylene, polypropylene, and polyvinylchloride. It is made from monomers of styrene, which is an aromatic hydrocarbon. There are four different varieties—clear, or so-called general purpose polystyrene (GPPS), impact modified polystyrene (IPS), more commonly called HIPS (high impact polystyrene, see Polymer Glasses, Fracture of: Factors Controlling Toughness), expanded polystyrene (EPS), and the recently introduced syndiotactic polystyrene (sPS, see Polystyrene: Syndiotactic). It is a synthetic polymer prepared by heating styrene in the presence of benzoyl peroxide by following a free radical mechanism.