

ABSTRACT OF THE DISCLOSURE

Using a continuous polymerization apparatus consisting of at least two serially connected reactors including at least one complete-mixing type of reactor, a rubber-modified styrene resin composition is manufactured by

converting 20 to 35% of a styrene compound monomer to a polymer in the first agitation tank to form a rubber dispersed phase, using particular amounts of materials and a polymerization material solution meeting the following equation:

$$9 \leq 15[I]^{1/2}/[E]+[S]^{1/3} \leq 21 \dots [1]$$

wherein [I], [E] and [S] are the concentrations of an organic peroxide (wt.ppm), an aromatic solvent (wt.%) and a molecular weight regulator (wt.ppm), respectively;

increasing the conversion of monomer ratio to 50 to 95 % in the subsequent reactors; and

separating the resulting product from the remaining monomer and the solvent, to provide a rubber-modified styrene resin composition in which the dispersed rubber particles have a volume-average particle size of 1 to 4 μm and the ratio of 10 % value to 90 % value of the cumulative particle size distribution by volume, in the range of 3 to 20.

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