

SEMI-BATCH EMULSION PROCESS FOR MAKING DIENE RUBBER LATEX, RUBBER LATEX MADE THEREBY, AND GRAFT COPOLYMER MADE THEREFROM

Abstract of the Disclosure

A semi-batch process is provided for making a diene rubber latex. The process involves (a) providing an amount of an initial liquid batch composition (containing water, emulsifier and diene monomer), sufficient to occupy from 50 to 80 volume percent of a pressure reaction vessel based on the total volume of the vessel, (b) feeding to the vessel a liquid feed composition containing diene monomer and initiator, (c) providing cooling to the vessel to cool the liquid and vapor therein, and (d) reacting the diene monomer to a final diene monomer conversion level of at least 80 mol percent based on the total moles of diene monomer used in the reaction, and the final liquid volume level in the vessel being at least 80 volume percent based on the total volume of the vessel. The process allows for a high initial reaction rate which peaks early in the process when efficient vapor phase cooling is maximized, and maintains a low latex viscosity throughout the process thereby providing efficient liquid phase cooling during latex in the process. The present process allows for higher levels of production over batch utilizing the same vessel volume. A rubber latex is also provided having a narrow particle size distribution, and a vinyl aromatic-diene rubber graft copolymer is provided exhibiting certain advantageous properties.

FIG. 1