

Abstract of the DisclosureEMULSION STYRENE-BUTADIENE RUBBER

This invention discloses an emulsion styrene-butadiene rubber (SBR) that can be employed in manufacturing tire tread formulations that have rolling resistance and treadwear characteristics that are similar to those made with solution SBR but with improved traction characteristics. Thus, the emulsion SBR of this invention is superior in many respects for use in tire tread compounds to conventional solution SBR and conventional emulsion SBR. This invention more specifically discloses a styrene-butadiene rubber composition which is comprised of repeat units which are derived from styrene and 1,3-butadiene, wherein the styrene-butadiene rubber composition has a number average molecular weight as determined by thermal field flow fractionation which is within the range of about 50,000 to 150,000, and wherein the styrene-butadiene rubber has a light scattering to refractive index ratio which is within the range of 1.8 to 3.9. The subject invention further reveals a styrene-butadiene rubber composition which is comprised of repeat units which are derived from styrene and 1,3-butadiene, wherein a plot of log frequency versus storage modulus of the styrene-butadiene rubber composition crosses over a plot of log frequency versus loss modulus of the styrene-butadiene rubber composition at a log frequency within the range of 0.001 radians per second to 100 radians per second when conducted at 120°C using parallel plate geometry in the dynamic oscillation frequency sweep of the styrene-butadiene rubber.