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(54) Title: METHODS AND APPARATUS FOR PRODUCING AND TREATING NOVEL ELASTOMER COMPOSITES**(57) Abstract**

Elastomer masterbatch is processed in a continuous compounder (100) having multiple parallel elongate rotors (106) axially oriented in an elongate processing chamber (104). Optionally, additional materials are compounded into the masterbatch, e.g., additives (58, 59), other elastomeric compositions, etc. Preferably, the masterbatch then is further processed in an open mill (120). Excellent control of Mooney Viscosity is achieved. In certain preferred embodiments, elastomer composites are produced by novel continuous flow methods and apparatus in which fluid streams of particulate filler (57) and elastomer latex (58) are fed to the mixing zone (14, 50) of a coagulum reactor (48) to form a coagulated mixture in semi-confined flow continuously from the mixing zone (50) through a coagulum zone (52) to a discharge end (68) of the reactor. The particulate

filler fluid is fed under high pressure to the mixing zone (50), such as to form a jet stream to entrain elastomer latex fluid sufficiently energetically to substantially completely coagulate the elastomer with the particular filler prior to the discharge end (68) without need of adding acid or salt solution or other coagulation step. The coagulated elastomer and particulate filler composite is fed into the aforesaid continuous compounder (100) for processing and control of its moisture level and Mooney Viscosity. Novel elastomer composites are produced. Such novel elastomer composites combine material properties and characteristics, such as choice of filler, elastomer, level of filler loading, moisture level, Mooney Viscosity, balance between molecular weight and amount of bound rubber, and macro-dispersion not previously achieved.

