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(54) Title: FLAME RETARDANT POLYURETHANES AND ADDITIVES THEREFOR

(57) Abstract: A free-flowing, stable liquid flame retardant mixture comprised of or formed by mixing together components comprised of: A) at least one organic halogen-containing reactive flame retardant in which the halogen is bromine, chlorine or both; and B) a liquid additive that is comprised of at least one aliphatic polyepoxide of the formula R(EP)_n, wherein R is a straight chain or branched chain aliphatic moiety which consists of carbon, hydrogen, and optionally, one or more ether oxygen atoms and/or one or more epoxy oxygen atoms; Ep is a terminal epoxy group; and n is a whole or fractional number in the range of 2 to about 6. Such mixtures can be effectively used in the preparation of flame retardant rigid polyurethanes and rigid foams thereof, and rigid polyisocyanurates and rigid foams thereof. Component B) serves as an effective hardener for such polymers and foams. It is preferable to include in the liquid flame retardant mixture one or more phosphorus-containing flame retardant additives such as a fully-esterified ester of a pentavalent acid of phosphorus, e.g., an organic phosphate or organic phosphonate.



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