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(54) Title: PRODUCTION OF BROAD MOLECULAR WEIGHT POLYETHYLENE

(57) Abstract: The present invention is directed to the use of aluminum alkyl activators and co-catalysts to improve the performance of chromium-based catalysts. The aluminum alkyls allow for the variable control of polymer molecular weight, control of side branching while possessing desirable productivities, and may be applied to the catalyst directly or separately to the reactor. Adding the alkyl aluminum compound directly to the reactor (in-situ) eliminates induction times.