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(54) **Title:** PROCESS FOR MAKING A HIGH VISCOSITY BASE OIL WITH AN IMPROVED VISCOSITY INDEX

STATIC MIXER LOOP REACTOR

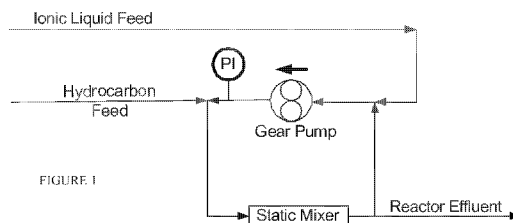


FIGURE 1

(57) **Abstract:** We provide a process, comprising oligomerizing one or more olefins having a boiling point less than 82°C in a presence of an ionic liquid catalyst and one or more C5+ alpha olefins in a reactor to produce a base oil having a kinematic viscosity at 100°C of 36 mm²/s or higher and a VI greater than 55; and wherein the one or more olefins having the boiling point less than 82°C comprise greater than 50 wt% of a total mixture of olefins fed to the reactor. We provide a process, comprising oligomerizing olefins having a low boiling point in a presence of an ionic liquid catalyst and a mixture of C5+ alpha olefins derived from waste plastic to produce a base oil having a kinematic viscosity at 40°C greater than 1100 mm²/s and a VI greater than 55. We also provide a base oil made by the process.