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63/188,726 14 May 2021 (14.05.2021) US(71) Applicants: **EXXONMOBIL CHEMICAL PATENTS INC.** [US/US]; 5200 Baytown Drive, P.o. Box 2149, Houston, TX 77520 (US). **CHEVRON ORONITE COMPANY LLC** [US/US]; 6001 Bollinger Canyon Road, San Ramon, CA 94583-2324 (US).(72) Inventors: **CANICH, Jo Ann, M.**; C/o Exxonmobil Chemical Company, 5200 Baytown Drive, P.o. Box 2149, Houston, TX 77520 (US).

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(54) Title: ETHYLENE-PROPYLENE BRANCHED COPOLYMERS AS VISCOSITY MODIFIERS

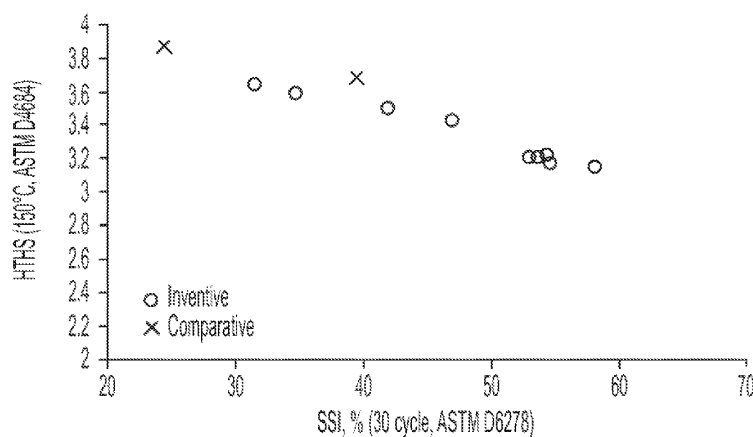


FIG. 1 SSI vs. HTHS for commercial linear reference samples (OCPs) and inventive polymers

(57) **Abstract:** The present disclosure relates to lubricant compositions comprising a branched copolymer and methods for making such compositions. Lubricant compositions of the present disclosure comprise an oil and a copolymer and have a high temperature high shear (HTHS) viscosity of about 5 or less, shear stability index (30 cycles) of from about 2% to about 80%, a ratio of thickening efficiency to shear stability index (30 cycles) of from about 1:2 to about 1:30, a kinematic viscosity at 100°C of from about 3 cSt to about 30 cSt, and a thickening efficiency of about 1 or more. In another class of embodiments, the present disclosure provides a lubricant composition comprising a first and a second copolymers wherein the first copolymer has an ethylene content higher than that of the second copolymer, and wherein at least one of the two copolymers is a long chain branched ethylene copolymer.

[Continued on next page]

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