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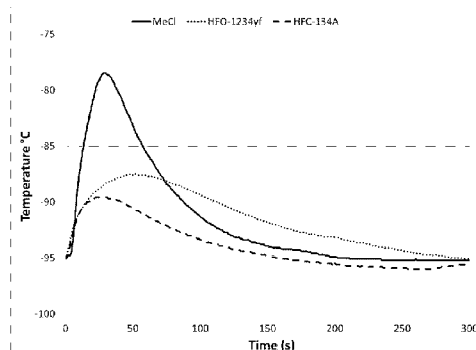
(54) **Title:** COPOLYMER HAVING LOW CYCLIC OLIGOMER CONTENT

Fig. 1A

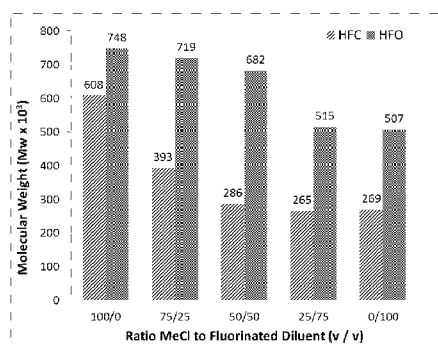


Fig. 1B

(57) **Abstract:** A copolymer has low levels of cyclic oligomeric compounds, which are undesirable impurities in certain applications. The cyclic oligomeric compounds are provided in an advantageously low ratio of C21/C13 oligomers. The C13 oligomers are extractable using steam to further reduce the total amount of cyclic oligomers. A process for producing the copolymer having low levels of cyclic oligomers involves contacting at least one isoolefin monomer with at least one multiolefin and/or β -pinene monomer in the presence of at least one Lewis acid and at least one initiator in a diluent. The diluent contains a hydrofluorinated olefin (HFO) comprising at least three carbon atoms and at least three fluorine atoms. Hydrofluorinated olefins used in the present invention are better diluents for butyl slurry cationic polymerization than saturated hydrofluorocarbons.

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