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(71) Applicant: **CHEVRON PHILLIPS CHEMICAL COMPANY LP** [US/US]; 10001 Six Pines Drive, The Woodlands, Texas 77380 (US).

(72) Inventor: **KREISCHER, Bruce E.**; 7619 Prairie Oak Trail, Kingwood, Texas 77346 (US).

(74) Agent: **TACONI, Katherine**; 10001 Six Pines Drive, The Woodlands, Texas 77380 (US).

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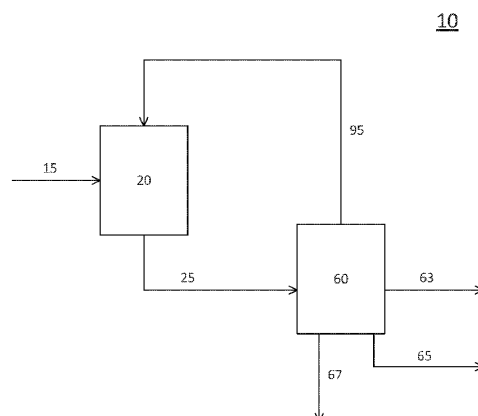


FIG. 1

(57) Abstract: Methods for recycling ethylene from a reaction zone effluent stream from an oligomerization reaction zone, in which the reaction zone effluent stream contains an oligomer product effluent having at least 20 mass % octene(s), include a step of separating the reaction zone effluent stream into a first stream containing ethylene and less than 5 mass % C₄₊ olefins, a second stream containing butene(s) and less than 10 mass % C₆₊ olefins, a third stream containing at least 96 mass % hexene(s), and a fourth stream containing at least 96 mass % octene(s). The ethylene-rich first stream is recycled into the oligomerization reaction zone, while the recycle of 1-butene and other butenes is reduced significantly.

[Continued on next page]

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