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(71) Applicant: **EXXONMOBIL CHEMICAL PATENTS
INC.** [US/US]; 5200 Bayway Drive, Baytown, TX 77520
(US).

(72) Inventors: **MADUSKAR, Saurabh, S.**; 3 Hermann Museum Circle Drive, Apt. 4402, Houston, TX 77004 (US). **KUECHLER, Keith, H.**; 912 Applewood Drive, Friendswood, TX 77546 (US). **BAO, Xiaoying**; 4239 Albans, Houston, TX 77005 (US).

(74) Agent: **CHEN, Siwen** et al.; Exxonmobil Chemical Company, Law Department, P.O. Box 2149, Baytown, TX 77522-2149 (US).

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(54) Title: METHOD AND SYSTEM FOR LIGHT OLEFIN GENERATION WITH HIGH YIELDS AND SELECTIVITY

Loss in C_3H_6 Yld at various T/Ps

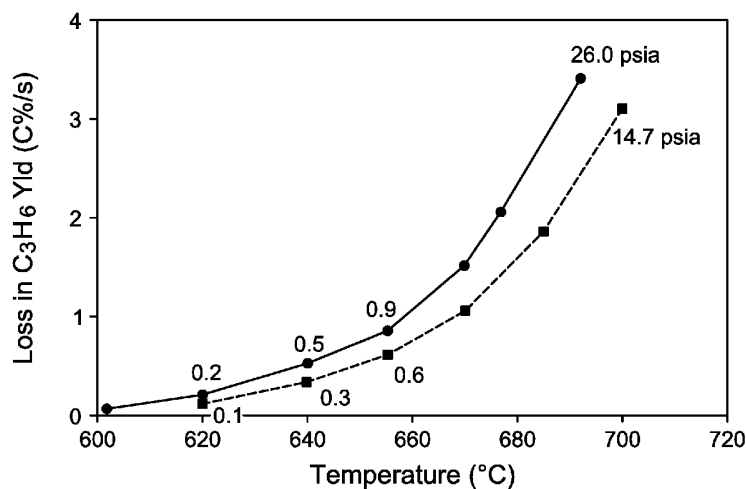


FIG. 1

(57) Abstract: A method for forming an olefin, the method including: introducing a hydrocarbon feed stream into a reactor including a dehydrogenation catalyst; reacting the hydrocarbon feed stream with a dehydrogenation catalyst in the reactor to form a high temperature dehydrogenated product, the high temperature dehydrogenated product including at least a portion of the dehydrogenation catalyst; separating at least a portion of the dehydrogenation catalyst from the high temperature dehydrogenated product in a primary separation device and a secondary separation device downstream of and in fluid communication with the primary separation device; following the exit of high temperature dehydrogenation product from the secondary separation device, combining the high temperature dehydrogenation product with a quench stream to cool the high temperature dehydrogenation product and form an intermediate temperature dehydrogenation product, wherein the quench stream includes a hydrocarbon; and cooling the intermediate temperature dehydrogenation product to form a cooled dehydrogenation product.

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