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(54) Title: METHODS FOR MAKING LIGHT OLEFINS BY DEHYDROGENATION THAT UTILIZE COMBUSTION ADDITIVES THAT INCLUDE TRANSITION METALS

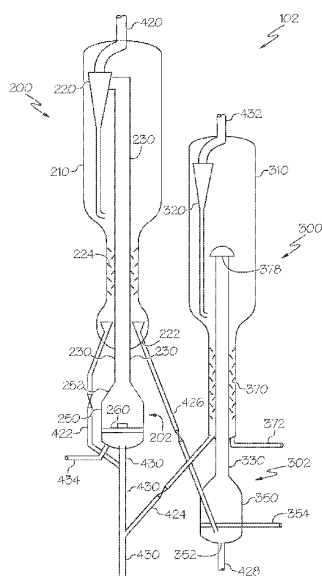


FIG. 1

(57) Abstract: A method for making light olefins by dehydrogenation may include operating a catalytic dehydrogenation process, monitoring a composition of a combustion gas in the combustor to detect a concentration of one or more hydrocarbons, and selectively adding a combustion additive with the catalyst when the combustion gas comprises one or more hydrocarbons in an amount greater than 5% of a lower flammability level of the combustion gas at a temperature and pressure of the combustor. A Jet cup attrition index of the combustion additive may be greater than a Jet cup attrition index of the catalyst. The combustion additive may comprise from 1 wt.% to 10 wt.% of one or more transition metals exclusive of gallium and noble metals, from 0 parts per million by weight (ppmw) to 100 ppmw of gallium and noble metals, and at least 85 wt.% support.

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