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(54) Title: PROCESSES FOR UPGRADING ALKANES AND ALKYL AROMATIC HYDROCARBONS

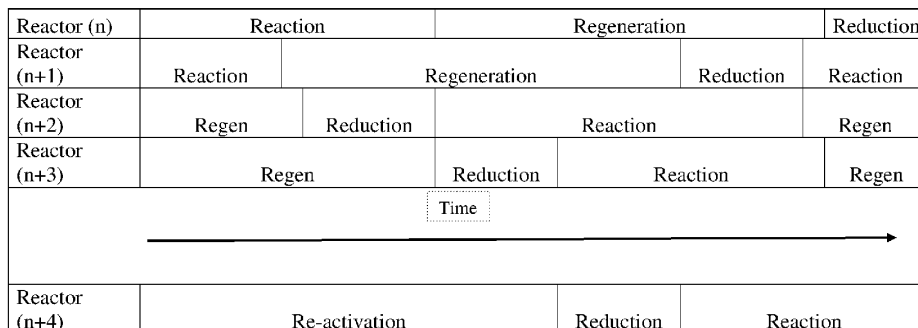


FIG. 1

(57) Abstract: Processes for upgrading a hydrocarbon. The process can include introducing, contacting, and halting introduction of a hydrocarbon-containing feed into a reaction zone. The feed can be contacted with a catalyst within the reaction zone to effect dehydrogenation, dehydroaromatization, and/or dehydrocyclization of the feed to produce a coked catalyst and an effluent. The process can include introducing, contacting, and halting introduction of an oxidant into the reaction zone. The oxidant can be contacted with the coked catalyst to effect combustion of the coke to produce a regenerated catalyst. The process can include introducing, contacting, and halting introduction of a reducing gas into the reaction zone. The reduction gas can be contacted with the regenerated catalyst to produce a regenerated and reduced catalyst. The process can include introducing and contacting an additional quantity of the feed with the regenerated and reduced catalyst to produce a re-coked catalyst and additional first effluent.

[Continued on next page]

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