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(54) Title: SYSTEM AND PROCESS FOR PRODUCING AN OXIRANE

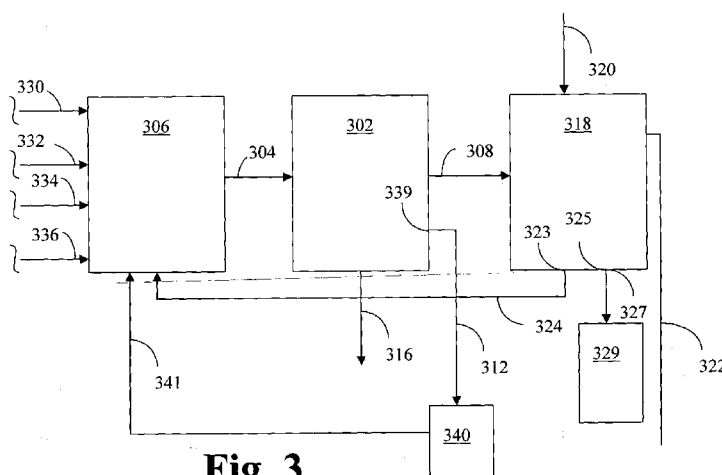


Fig. 3

(57) Abstract: Embodiments of the present disclosure are directed to a system and a process for producing an oxirane. For the various embodiments, the system and process of the present disclosure includes: a reaction vessel having a reaction mixture of an olefin, a peroxide compound, a solvent mixture with an alcohol and a non-reactive co-solvent, a solid phase, and reaction products of the reaction mixture, where the reaction products include an oxirane; a separation vessel coupled to the reaction vessel, where an effluent of the reaction mixture and reaction products from the reaction vessel separates in the separation vessel into a liquid aqueous phase and a liquid organic phase; and an extraction vessel coupled to an outlet of the separation vessel, where the liquid aqueous phase taken from the outlet of the separation vessel mixes with an extraction solvent to extract oxirane from the aqueous phase.

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