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(54) Title: GAS PHASE PROCESS FOR THE EPOXIDATION OF NON–ALLYLIC OLEFINS

(57) Abstract

This invention provides an improved gas phase feed process using heterogeneous catalysis for the selective epoxidation of non–allylic olefins wherein the epoxidation is carried out in the presence of branched–chain alkane or cyclic aliphatic hydrocarbons with high autoignition temperatures and high Research Octane Numbers. The hydrocarbons useful in the present invention possess higher heat capacities as compared to other non–oxidizable materials, e.g., nitrogen, argon, helium, and other straight–chain hydrocarbons, e.g., methane, ethane, and n–butane, as well as smaller flammability (cool flame and explosive) regions thant the above–stated hydrocarbons typically used as diluents or ballast gases in olefin epoxidations. The process is particularly useful for the continuous preparation of 3,4–epoxy–1–butene from 1,3–butadiene.