Abstract

Dehydrogenation of olefin-rich hydrocarbon mixtures

The object of the invention is to specify a process for dehydrogenating alkanes in which such feedstock mixtures may be used having a high proportion of olefins, i.e. approximately 1% by weight to 10% by weight. Specifically, alkenes having two to five carbon atoms should be generated from alkanes having the same chain length and therefore the number of carbon atoms should not be changed by the dehydrogenation. The process is intended to be feasible on an industrial scale. A basic concept of the invention consists of hydrogenating alkenes present in the feedstock mixture to the corresponding alkanes before they come into contact with the dehydrogenation catalyst. An undesired coke deposit is thus avoided. The hydrogenation is effected by minimal addition of hydrogen (80% to 120% of the stoichiometrically required amount). The hydrogenation is effected either over a hydrogenation catalyst specifically provided therefor, which differs from the dehydrogenation catalyst, or over the dehydrogenation catalyst itself.

Figure 1 relating to abstract