

Abstract**Combined Preparation of at least Butene and Octene from Ethene**

5 The invention is concerned with the combined preparation of at least butene and octene from ethene. The object is based on specifying a completely heterogeneously catalyzed process for the combined preparation of at least butene and octene from ethene, which may be operated without a complex catalyst removal and yet does not contaminate downstream, homogeneously catalyzed processes. In addition, the process should be able to be carried out as far as possible in the liquid
10 phase in order to be compatible with established technologies for utilization of butene and octene. The process presented is also capable of additionally preparing hexene as the third target product, in addition to the two target products butene and octene, in order to be able to react to any changes in market requirements.

15 **Figure 1**