

Process and plant for producing alpha olefins

Abstract

A process (100) for the production of linear alpha-olefins is proposed, wherein ethylene in a feed mixture is subjected to catalytic oligomerization (1) to obtain a product mixture
5 containing alpha-olefins with different chain length and side compounds. In a primary fractionation (2), a primary fraction is formed using at least part of the product mixture, and in a secondary fractionation (4), a secondary fraction is formed using at least part of the primary fraction. The primary fractionation (2) and the secondary fractionation (4) are carried out such that the primary fraction and the secondary fraction predominantly
10 contain one of the alpha-olefins and are low in or free of other alpha-olefins, that the primary fraction contains one or more of the side compounds, and that the secondary fraction is depleted relative to the primary fraction in the one or more side compounds. In an intermediate step (3) between the primary fractionation (2) and the secondary fractionation (4), to which at least part of the primary fraction is subjected, the one or
15 more side compounds are at least partly converted to one or more secondary compounds, and the one or more secondary compounds are at least partly separated in the secondary fractionation (4). The intermediate step (3) is carried out in such a way that not more than 0.8% of the alpha-olefin predominantly contained in the primary fraction or the part thereof subjected to the intermediate step is reacted. The
20 intermediate step is carried out using an alumina-based catalyst.

[Figure 1]