

Aldolisation-dehydration process

ABSTRACT

An aldolisation-dehydration process is disclosed for converting an aldehyde, e.g. *n*-valeraldehyde, to a substituted acrolein, e.g. propyl butyl acrolein (2-propylhept-2-enal). Aldolisation and dehydration are effected in a stirred tank reactor (16;111) using an alkali catalyst, such as sodium hydroxide. A reaction product stream (23;113) containing both organic and aqueous phases is distilled (in column 25;123) to yield a heterogeneous azeotrope containing water and aldehyde. On condensation and phase separation the lower water layer (34;150) can be discharged from the plant without the need for neutralisation. From the bottom of the distillation zone a mixture (36;157) of substituted acrolein and alkali catalyst solution is obtained. The substituted acrolein is recovered as product (45;173), while the catalyst solution (47;175) is recycled to the aldolisation reactor. Part (49;181) of the catalyst solution is purged to control the level of Cannizzaro reaction products.

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