

Preparation of n-butyl alkyl ethers

5 Abstract

n-Butyl alkyl ethers are prepared by

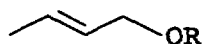
- 10 a) reacting 1,3-butadiene or a butadiene-containing hydrocarbon mixture with an alcohol of the formula I

ROH

I,

- 15 where the radical R is a C₂-C₂₀-alkyl, alkenyl, cycloalkyl or cycloalkenyl group, each of which may be unsubstituted or substituted by 1 or 2 C₁-C₁₀-alkoxy or hydroxy groups, a C₆-C₁₀-aryl group or a C₇-C₁₁-aralkyl group or the methyl group, at elevated temperature and
 20 elevated pressure in the presence of a Brönsted acid or in the presence of a complex of an element from group Ib, VIIb or VIIIb of the Periodic Table of the Elements with phosphorus- or nitrogen-containing ligands to give a mixture of adducts of the formulae II

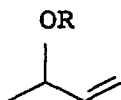
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II

and III

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III ,

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- b) separating the isomers,

- c) isomerizing the adduct III to give the adduct II and

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- d) hydrogenating the adduct II in the liquid phase in the presence of a homogeneous or heterogeneous transition metal catalyst or in the gas phase in the presence of a heterogeneous transition metal-containing catalyst to give an n-butyl alkyl ether of the formula IV

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IV.

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