Claims

1. A process for codimerizing olefins, which comprises

a) providing a first olefin starting material which consists essentially of C_n-olefins and providing a second olefin starting material which consists essentially of C_m-olefins, where n and m are, independently of one another, two different integers from 2 to 12, and

b) reacting the first and second olefin starting materials over a heterogeneous olefin oligomerization catalyst.

2. The process according to claim 1, wherein, in step a), a first olefin starting material which consists essentially of C_n-olefins is provided and a second olefin starting material which consists essentially of C_{2n}-olefins, where n is an integer from 2 to 6, is provided.

3. The process according to claim 2, wherein n is 4.

4. The process according to any of the preceding claims, wherein the first olefin starting material has a proportion of branched olefins of not more than 20% by weight, particularly preferably not more than 10% by weight, in particular not more than 5% by weight, especially not more than 3% by weight, based on the total olefin content.

5. The process according to any of the preceding claims, wherein an industrially available olefin-comprising hydrocarbon mixture from a cracking process is used as first olefin starting material.

6. The process according to claim 5, wherein a raffinate II is used as first olefin starting material.

7. The process according to any of the preceding claims, wherein the second olefin starting material has a degree of branching of the olefins, determined as the ISO index, in the range from a to 1.8, preferably from 0.5 to 1.5, in particular from 0.8 to 1.3.

8. The process according to any of claims 3 to 7, wherein the second olefin starting material is obtainable by dimerization of a raffinate II in the presence of a nickel-comprising oligomerization catalyst.

9. The process according to any of claims 1 to 7, wherein the second olefin starting material is obtained by the DIMERSOL process or by the Octol process.

10. The process according to any of the preceding claims, wherein the reaction of the olefin starting materials in step b) is carried out continuously.

11. The process according to any of the preceding claims, wherein the reaction product from step b) is separated into a first substream and a second substream, the first substream is subjected to a work-up to give a fraction comprising essentially the codimerization product and the second substream is recirculated 15 to step a).

12. The process according to any of the preceding claims, wherein the molar ratio of C_m-olefins to C_n-olefins, in particular the molar ratio of C_{2n}-olefins to C_n-olefins, based on the olefins fed in step b), is in the range from 0.25:1 to 4:1, preferably in the range from 0.5: 1 to 3: 1.

13. The process according to any of the preceding claims, wherein the first olefin starting material and the second olefin starting material are reacted over a heterogeneous olefin oligomerization catalyst based on a sheet and/or framework silicate in step b).

14. The process according to claim 13, wherein the oligomerization catalyst used in step b) comprises at least one porous silicate having a mean pore diameter of at least 0.5 nm.

15. The process according to any of claims 13 to 14, wherein the oligomerization catalyst used in step b) comprises at least one zeolite or consists of a zeolite.

16. An olefin codimer obtainable by a process as defined in any of claims 1 to 15.

17. The olefin codimer according to claim 13 whose ^{1}H-NMR spectrum has an area integral of from 38 to 62%, preferably from 44 to 56%, particularly preferably

from 47 to 53%, based on the total integral area, in the chemical shift δ range from 0.3 to 1.05 ppm, based on tetramethylsilane.

18. A process for preparing alcohols, which comprises

a) providing a first olefin starting material which consists essentially of C_m-olefins and providing a second olefin starting material which consists essentially of C_n-olefins, where n and m are, independently of one another, two different integers from 2 to 12,

b) feeding the first and second olefin starting materials into a first reaction zone and subjecting them to an oligomerization over a heterogeneous olefin oligomerization catalyst,

c) separating off a stream enriched in C_{n+m}-olefin codimers from the output from the first reaction zone,

d) feeding the stream enriched in C_{n+m}-olefin codimers into a second reaction zone and subjecting it to a reaction with carbon monoxide and hydrogen in the presence of a hydroformylation catalyst and

e) hydrogenating the hydroformylation product.

19. A process for preparing alcohols having from 7 to 19 carbon atoms, which comprises

a) providing a first olefin starting material which consists essentially of C_n-olefins and providing a second olefin starting material which consists essentially of C2n-olefins, where n is an integer from 2 to 6,

b) feeding the first and second olefin starting materials into a first reaction zone and subjecting them to an oligomerization over a heterogeneous olefin oligomerization catalyst,

c) separating off a stream enriched in C_{3n}-olefin codimers from the output from the first reaction zone,

d) feeding the stream enriched in C_{3n}-olefin codimers into a second reaction zone and subjecting it to a reaction with carbon monoxide and hydrogen in the presence of a hydroformylation catalyst and

e) hydrogenating the hydroformylation product.

20. An alcohol mixture obtainable by a process as defined in claim 18 or 19.

21. The alcohol mixture according to claim 20 which is a C_{13}-alcohol mixture.

22. A functionalized alcohol mixture obtainable by subjecting an alcohol mixture according to claim 20 or 21 to alkoxylation, glycosidization, sulfation, phosphation, alkoxylation and subsequent sulfation or alkoxylation and subsequent phosphation.

23. The use of the functionalized alcohol mixture according to claim 22 as surfactant, dispersant, paper auxiliary, dirt-dissolving agent, corrosion inhibitor, auxiliary for dispersions or encrustation inhibitor.