CLAIMS

1. Process for producing dienes, preferably a conjugated diene, more preferably 1,3-butadiene, comprising a dehydration of at least one alkenol having a number of carbon atoms greater than or equal to 4, in the presence of at least one catalytic material comprising at least one macroporous zeolite in acid, or prevalently acid, form, wherein said zeolite has a molar ratio SiO_2/Al_2O_3 comprised between 7 and 60, preferably between 10 and 30; wherein said macroporous zeolite is a zeolite having a FAU, or BEA, or MTW structure; and wherein when said at least one alkenol derives from catalytic dehydration of diols, the dehydration of said at least one diol is a previous dehydration step with respect to said catalytic dehydration of said at least one alkenol.
2. Process according to claim 1, wherein said catalytic material comprises at least one inorganic binder, selected from the group consisting of silica, alumina, zirconium oxide, titanium oxide and mixtures thereof.
3. Process according to claim 2, wherein said inorganic binder is present in quantities comprised between 5% and 80% by weight, preferably between 10% and 75% by weight, more preferably between 20% and 55% by weight, relative to the total weight of said catalytic material.
4. Process according to any one of claims 1 to 3, wherein said macroporous zeolite is a zeolite having a FAU or BEA structure.
5. Process according to claim 4, wherein said zeolite having a FAU structure is a zeolite Y.
6. Process according to claim 5, wherein said zeolite Y is characterized by a molar ratio SiO_2/Al_2O_3 comprised between 12 and 30.
7. Process according to claim 6, wherein said catalytic material comprises an

inorganic binder containing silica.

8. Process according to claim 4, wherein said zeolite having a BEA structure is zeolite Beta.

9. Process according to claim 8, wherein said zeolite Beta is characterized by a molar ratio SiO_2/Al_2O_3 of between 25 and 30.

10. Process according to claim 9, wherein said catalytic material comprises an inorganic binder containing alumina.

11. Process according to any one of claims 1 to 10, wherein said at least one alkenol is a linear or branched alkenol having general formula $C_nH_{2n}O$, n being an integer greater than or equal to 4 and less than or equal to 8, preferably greater than or equal to 4 and less than or equal to 6 and even more preferably equal to 4.

12. Process according to any one of claims 1 to 11, wherein said alkenol is selected from the group consisting of 2-buten-1-ol, 3-buten-2-ol, 3-buten-1-ol and mixtures thereof.

13. Process according to any one of claims 1 to 12, wherein said alkenol is obtained directly from biosynthetic processes or by catalytic dehydration processes of a diol.

14. Process according to any one of claims 1 to 13, wherein, when said alkenol has a number of carbon atoms equal to 4, and is therefore a butenol, being said butenol obtained by the catalytic dehydration of a butanediol, preferably 1,3-butanediol, in the presence of a catalyst based on cerium oxide.

15. Process according to claim 13, wherein said diol is derived from fermentation of sugars, preferably from fermentation of sugars deriving from biomass.

16. Process according to claim 15, wherein said diol is derived from the fermentation of sugars deriving from guayule biomass and/or from thistle, including scraps, residues, waste from guayule and/or thistle or from their processing.

17. Process according to any one of claims 1 to 16, wherein said alkenol is in a mixture with a diluent selected from an inert gas such as N_2 or Ar, and preferably N_2, and a compound having a boiling point comprised between 25 °C and 150 °C under normal conditions, preferably a boiling point comprised between 50 °C and 125 °C and a melting point less than or equal to 20 °C under normal conditions.
18. Process according to claim 17, wherein said compound is selected from the group consisting of water, tetrahydrofuran, cyclohexane, benzene, and mixtures thereof.
19. Process according to claim 17 or 18, wherein said diluent is selected from N_2 and water, and preferably is water.
20. Process according to any one of claims 1 to 19, conducted at a temperature comprised between 150 °C and 500 °C, preferably comprised between 200 °C and 450 °C, more preferably between 250 °C and 400 °C.
21. Process according to any one of claims 1 to 20, conducted at a pressure comprised between 5 and 5000 kPa, preferably comprised between 30 and 350 kPa, more preferably comprised between 80 and 250 kPa.
22. Process according to any one of claims 1 to 21, conducted in gas phase or in mixed liquid/gas phase, preferably in gas phase.
23. Process according to any one of claims 1 to 22, wherein, when the said at least one alkenol derives from the catalytic dehydration of at least one diol, said at least one alkenol is produced by catalytic dehydration of at least one diol to provide said at least one alkenol, performed in a separate reactor and before the subsequent dehydration of said at least one alkenol to provide the diene.