

ABSTRACT

In the production of ϵ -caprolactam by contacting cyclohexanone oxime with a solid acid catalyst in the gaseous phase to effect a rearrangement reaction of the cyclohexanone oxime, wherein the solid acid catalyst is produced by calcining a dried catalyst precursor: in a first aspect, the catalyst precursor comprises a zeolite, a crystalline clay mineral and at least one substance selected from the group consisting of an inorganic oxide and a compound which forms the inorganic oxide by calcination, wherein the inorganic oxide comprises an oxide of at least one element selected from the group consisting of elements belonging to Groups 4, 13 and 14 of the Periodic Table and wherein the inorganic oxide is other than oxides contained in a crystalline form in the zeolite and the crystalline clay mineral; or in a second aspect, the rearrangement reaction is effected in the presence of a polyhydric alcohol derivative represented by the following formula:
 R^1-O-R^2-OH (wherein: R^1 represents a C_1 - C_5 alkyl group or a phenyl group, and R^2 represents a C_2 - C_5 alkylene group).

