

ABSTRACT

PRODUCTION METHOD FOR ϵ -CAPROLACTAM

5 A method of producing ϵ -caprolactam, including: conducting a gas phase
reaction in which cyclohexanone oxime is allowed to come into contact with a solid
catalyst in the presence of a lower alcohol, and then cyclohexanone oxime is converted
into ϵ -caprolactam, and adjusting the amount of water, ammonia and amines in a gas
phase reaction system to the following values (1) to (3), wherein the lower alcohol
10 contains a recycled lower alcohol which is recovered from a reaction mixture obtained by
a gas phase reaction; (1) $0 \leq \{[\text{the amount of ammonia (number of moles)} / \text{the amount of}$
 $\text{the lower alcohol (number of moles)} \times 100]\} < 14$; (2) $0 < \{[\text{the amount of water}$
 $\text{(number of moles)} / \text{the amount of the lower alcohol (number of moles)} \times 100]\} < 11$;
and (3) $0 \leq \{[\text{the amount of amines (number of moles)} / \text{the amount of the lower alcohol}$
15 $\text{(number of moles)} \times 100]\} < 7.5$.

Figure 1