

Separation of ammonia

Abstract

5

- A process is provided for the separation of ammonia (I) from mixtures (II) containing ammonia (I) and an amide (IV) selected from the group consisting of a lactam (IVa), an oligomer (IVb) and a polymer (IVc) with amide groups in the main chain, said
- 10 amide (IV) having been obtained by reacting educts (III), selected from the group consisting of nitriles (IIIa), amines (IIIb), amino nitriles (IIIc) and amino amides (IIId), with water, wherein
- 15 a) the educt (III) is reacted with water in the liquid phase, in the presence of an organic liquid diluent (V), to give a mixture (II) containing the amide (IV) and the ammonia (I), the diluent (V) exhibiting a miscibility gap with water under certain quantity, pressure and temperature conditions,
- 20 b) the mixture (II) is converted under quantity, pressure and temperature conditions such that the diluent (V) and the water are in liquid form and exhibit a miscibility gap, to give a two-phase system consisting of a phase (VII)
- 25 containing a higher proportion of diluent (V) than water, and a phase (VIII) containing a higher proportion of water than diluent (V),
- 30 c) the phase (VII) is separated from the phase (VIII),
- d) all or part of the ammonia present in the phase (VII) is separated off by extraction (a) with a water-containing mixture (IX) to give an aqueous mixture (X) containing the ammonia which has been separated off, and a mixture (XI)
- 35 containing less ammonia than the phase (VII), and
- e) the diluent (V), any residual ammonia and any by-products selected from the group consisting of low-boiling components, high-boiling components and unreacted compounds (III) are
- 40 separated from the mixture (XI) to give the amide (IV).

45



162162



G00002