Title (en)

METHOD FOR THE RECYCLING OF A LEWIS ACID

Title (de)

VERFAHREN ZUR RÜCKFÜHRUNG EINER LEWIS-SÄURE

Title (fr)

PROCEDE DE RECUPERATION D'UN ACIDE DE LEWIS

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Application

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Abstract (en)

[origin: WO2004007431A1] The invention relates to a method for the recycling of a Lewis acid from a reaction mixture (I), obtained from the hydrocyanation of an olefinically-unsaturated compound to give a nitrile, which has a miscibility gap with water under certain concentration, pressure and temperature conditions, in the presence of a catalyst system comprising a Lewis acid and a complex compound of a phosphorus-containing compound suitable as a ligand and a central atom suitable for said compound, characterised in that a) said complex compound is separated from a mixture (I) to give a mixture (II), b) mixture (II) is treated with water and undergoes a transformation generating pressure and temperature conditions to give a phase (III) with a higher proportion of water than said nitrile and a phase (IV) which has a higher proportion of said nitrile than of water, whereby phase (III) has a higher content of said Lewis acid than phase (IV), c) phase (III) is treated with a liquid diluent (V) which c1) does not form an azeotrope with water and the boiling point of which is higher than that of water under certain pressure conditions, or c2) forms an azeotrope or heteroazeotrope with water under certain pressure conditions, d) the mixture of phase (III) and liquid diluent (V) is distilled under the pressure conditions given in step c1) or c2) to give a mixture (VI) which has a higher proportion of water than of liquid diluent (V) and a mixture (VII) which has a higher proportion of diluent (V) than water, whereby mixture (VII) has a higher content of said Lewis acid than mixture (VI), and e) mixture (VII) is fed to a hydrocyanation of an olefinically-unsaturated compound to give a nitrile, which has a miscibility gap with water under certain concentration, pressure and temperature conditions, in the presence of a catalyst system comprising a Lewis acid and a complex compound of a phosphorus-containing compound suitable as a ligand and a central atom suitable for said compound.

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