

## IN THE CLAIMS

Please cancel Claim 16.

Please amend Claims 12, 18 and 21.

1-11 (Cancelled)

12. (Currently Amended) Nickel mixed hydroxide with Ni as the main element and with a layer structure, comprising

a) at least one element  $M_a$  from the group comprising Fe, Cr, Co, Ti, Zr and Cu which is present in two different oxidation states which differ by one electron in terms of the number of outer electrons, wherein the degree of oxidation  $\alpha$  of the element  $M_a$ , defined according to the following formula (I), is from 0.25 to 0.75

$$\alpha = \frac{M_a^{+(x+1)}}{M_a^{+(x+1)} + M_a^{+x}} \quad (I),$$

wherein  $M_a^{+(x+1)}$  means the molar quantity of the element  $M_a$  in the higher oxidation state, and  $M_a^{+(x)}$  the molar quantity of the element  $M_a$  in the lower oxidation state, and x is a number between 1 and 3;

- b) at least one element  $M_b$  from the group comprising B, Al, Ga, In and rare earth metals present in the trivalent oxidation state;
- c) optionally at least one element  $M_c$  from the group comprising Mg, Ca, Sr, Ba and Zn present in the divalent oxidation state;
- d) apart from the hydroxide, at least one additional anion selected from the group consisting of halides, carbonate, sulfate, acetate, oxalate, borate and phosphate in a quantity sufficient to preserve the electroneutrality of the mixed hydroxide; and
- e) water of hydration in a quantity which stabilizes the relevant structure of the mixed hydroxide.

13. (Previously Presented) The nickel mixed hydroxide according to Claim 12, wherein the proportion of Ni is from 60 to 92 mol % and the total proportion of the elements  $M_a$ ,  $M_b$  and  $M_c$  is from 40 to 8 mol %, in each case based on the total amount of Ni,  $M_a$ ,  $M_b$  and  $M_c$ .

14. (Previously Presented) The nickel mixed hydroxide according to Claim Mo-6398

12, wherein the proportion of the element  $M_a$  is from 10 to 40 mol %, based on the total amount of the elements  $M_a$ ,  $M_b$  and  $M_c$ .

15. (Previously Presented) The nickel mixed hydroxide according to Claim 12, wherein the proportion of the element  $M_c$  is from 1 to 30 mol %, based on the total amount of elements  $M_a$ ,  $M_b$  and  $M_c$ .

16. (Cancelled)

17. (Previously Presented) The nickel mixed hydroxide according to Claim 12, wherein the nickel mixed hydroxide is in the form of a powder with an average particle size from 1 to 100  $\mu\text{m}$ .

18. (Currently Amended) The nickel mixed hydroxide according to Claim 12, wherein the rare earth metals of the element  $M_b$  are selected from the group consisting of Sc, ~~Sc~~, Y and La.

19. (Previously Presented) The nickel mixed hydroxide according to Claim 12, wherein the halides are selected from the group consisting of fluoride and chloride.

20. (Previously Presented) The nickel mixed hydroxide according to Claim 12, wherein the nickel mixed hydroxide is a cathode material in an alkaline battery.

21. (Currently Amended) A process for preparing a nickel mixed hydroxide with Ni as the main element and with a layer structure, comprising:

a) at least one element  $M_a$  selected from the group consisting of Fe, Cr, Co, Ti, Zr and Cu which is present in two different oxidation states which differ by one electron in terms of the number of outer electrons, wherein the degree of oxidation  $\alpha$  of the element  $M_a$ , defined according to the following formula (I), is from 0.25 to 0.75

$$\alpha = \frac{M_a^{+(x+1)}}{M_a^{+(x+1)} + M_a^{+x}} \quad (I)$$

wherein  $M_a^{+(x+1)}$  means the molar quantity of the element  $M_a$  in the higher oxidation state, and  $M_a^{+x}$  the molar quantity of the element  $M_a$  in the

lower oxidation state, and x is a number between 1 and 3;

- b) at least one element  $M_b$  from selected from the group consisting of B, Al, Ga, In and rare earth metals present in the trivalent oxidation state;
- c) optionally at least one element  $M_c$  selected from the group consisting of Mg, Ca, Sr, Ba and Zn present in the divalent oxidation state;
- d) apart from the hydroxide, at least one additional anion selected from the group consisting of halides, carbonate, sulfate, acetate, oxalate, borate and phosphate in a quantity sufficient to preserve the electroneutrality of the mixed hydroxide; and
- e) water of hydration in a quantity which stabilizes the relevant structure of the mixed hydroxide,

the process comprising reacting components required to obtain the relevant mixed hydroxides in the form of water-soluble salts of Ni and of the elements  $M_a$ ,  $M_b$  and optionally  $M_c$  in a basic, aqueous medium for the co-precipitation of hydroxide reaction products with the formation of a homogeneous suspension of said reaction products,

wherein either water-soluble salts of the element  $M_a$  are used in different oxidation states or a water-soluble salt of the element  $M_a$  is used in the lower oxidation state and a partial oxidation is carried out until the desired ratio is obtained between the different oxidation states of the element  $M_a$ , or a water-soluble salt of the element  $M_a$  is used in the higher oxidation state and a partial reduction is carried out until the desired ratio is obtained between the different oxidation states of the element  $M_a$ , separation of the water from the suspension, and drying of the reaction products.

22. (Previously Presented) The process according to Claim 21, wherein at least one of the reaction components is introduced into the aqueous medium by anodic oxidation of the corresponding metal.

23. (Previously Presented) The process according to Claim 21, wherein the reaction is carried out at a pH from 8 to 13.

24. (Previously Presented) The process according to Claim 21, wherein

partial oxidation is carried out by using oxygen,  $H_2O_2$ , hypochlorite, peroxodisulfates or percarbonates as oxidizing agent.