Claims

1. Process for the removal of Cu and Fe from an acidic aqueous solution further containing one or more of Ni and Co, comprising the steps of:
   - adding a metallic reagent comprising one or more of Ni and Co to the acidic solution, in oxidizing conditions, thereby neutralizing the acidic solution, and forming a precipitate comprising Cu and Fe, wherein at least part of the Cu and Fe is in the form of a hydroxide, and, wherein the metallic reagent is in the form of a metallic powder; and,
   - separating the Cu and Fe precipitate from the solution, thereby obtaining a solution depleted in Cu and Fe, wherein said metallic powder has a particle size distribution in which the particles have an equivalent particle diameter d90 below 500 μm, or in which the particles have an average equivalent particle diameter d50 below 200 μm.

2. Process according to claim 1, wherein the acidic aqueous solution contains HCl or H_2SO_4.

3. Process according to claim 1 or 2, wherein the metallic reagent is a metallic alloy.

4. Process according to any one of claims 1 to 3, wherein the metallic reagent is free of sulfur.

5. Process according to any one of claims 1 to 4, wherein the oxidizing conditions are obtained by addition of H_2O_2 and/or an O_2-bearing gas.

6. Process according to any one of claims 1 to 5, wherein the process is performed at atmospheric pressure.

7. Process according to any one of claims 1 to 6, wherein in the step of adding a metallic reagent, the solution has after neutralizing a pH above 2.0, under the proviso that the acidic aqueous solution contains HCl, or a pH above 3.5, under the proviso that the acidic aqueous solution contains H_2SO_4.

8. Process according to any one of claims 1 to 7, wherein the metallic reagent is added to the acidic solution in a stoichiometric excess relative to the total of the free acid in said solution and of the acid generated in the precipitation reactions.

9. Process according to any one of claims 1 to 8, wherein the precipitate comprising Cu and Fe also comprises unreacted metallic reagent.

10. Process according to any one of claims 1 to 9, wherein the acidic aqueous solution is obtained by performing a step of acidic leaching of solid starting material containing Cu, Fe, and at least one of Ni and Co.

11. Process according to claim 10, wherein the precipitate comprising Cu and Fe is at least partially recycled to the step of acidic leaching of solid starting material.

12. Process according to any one of claims 1 to 11, wherein the solid starting material and the metallic reagent have the same composition.

13. Process according to any one of claims 1 to 12, wherein the solid starting material or the metallic reagent comprise batteries, waste batteries, battery scrap and/or waste from the production of batteries.