6. The method according to any one of claims 1 to 5, wherein the insulating layer comprises a compound selected from the group consisting of SiO_2, SiOC, SiN, SiOCH, SiC, and a polymer having one or more groups selected from the group consisting of primary amine, secondary amine, enamine, alcohol, thiol, aromatic heterocyclic (such as in particular pyridine, pyrrole, thiophene) and nonaromatic heterocyclic groups.

7. The method according to any one of claims 1 to 6, wherein the aqueous solution further comprises an agent for adjusting the pH from 8 to 12.

8. The method according to any one of claims 1 to 7, wherein the insulating layer undergoes a preliminary step of activation of its surface with a palladium compound prior to deposition of the layer based on nickel or cobalt.

9. The method according to any one of claims 1 to 8, wherein the cavities have a diameter at their opening in the range from 1 to 75 microns, and an aspect ratio in the range from 2:1 to 30:1.

10. The method according to any one of claims 1 to 9, comprising a step subsequent to the step of formation of the barrier layer, which consists of filling the cavities with copper without having first formed a copper seed layer on the surface of the barrier layer.

11. The method according to claim 10, wherein the cavities are filled with copper by electrodeposition, and the electrodeposition bath comprises, in solution in a solvent:

- copper ions at a concentration between 45 and 1500 mM;
- a copper complexing agent consisting of at least one compound selected from aliphatic polyamines having 2 to 4 amino groups at a concentration between 45 and 3000 mM;
- the molar ratio between the copper and said complexing agent being between 0.1 and 5; and
- optionally an accelerator such as for example thiodiglycolic acid at a concentration between 1 and 500 mg/l.

12. ~~A~~ Use of a kit ~~intended~~ for coating an electrically conducting or semiconducting substrate, such as a silicon substrate, covered with a layer of an electrically insulating material, and having a collection of cavities notably~~, said cavities being~~ intended to form through-silicon vias used for the fabrication of integrated circuits in three dimensions,

wherein ~~it~~ the kit comprises:

- at least one metal salt of nickel or cobalt ions at a concentration between 10^{-3} M and 1 M;

- at least one reducing agent of the nickel or cobalt ions in an amount between 10^{-4} M and 1 M;
- optionally, at least one stabilizer of the nickel or cobalt ions, in an amount between 10^{-3} M and 1 M;
- at least one polymer bearing amine functions at a concentration in the range from 5 to 250 mg/l, and

the polymer and the reducing agent being packaged separately.

13. The use of a kit according to claim 12, wherein the metal salt is nickel sulfate hexahydrate, and the reducing agent is dimethylamine borane.

14. The use of a kit according to claim 12 or 13, wherein the polymer bearing amine functions is a poly(ethylene imine) of number-average molecular weight between 500 and 700 g/mol.

15. The use of a kit according to claim 12, 13 or 14, wherein the polymer bearing amine functions is present at a concentration between 15 and 100 mg/l.

~~16. The use of a kit according to any one of claims 12 to 15 for coating an electrically conducting or semiconducting substrate, such as a silicon substrate, covered with a layer of an electrically insulating material, and having a collection of cavities notably intended to form through silicon vias used for the fabrication of integrated circuits in three dimensions.~~

~~17. The use of a kit according to claim 16, prior to filling the cavities with copper.~~