C L A I M S

1. A method for treating a surface of a non-conductive or carbon-fibres containing substrate, the method comprising the steps

(I) conditioning the surface of a non-conductive or carbon-fibres containing substrate, the conditioning method comprising the steps of

(a) providing said substrate;

(b) providing a conditioning composition comprising a nitrogen-containing compound; and

(c) contacting the substrate with the conditioning composition;

(II) a selector treatment of the surface of a non-conductive or carbon-fibres containing substrate, the selector treatment method comprising the steps of

(a) providing the substrate treated according to step (I);

(b) providing a selector composition which

(i) comprises a nitrogen-containing compound, and

(ii) has a pH of from 9 to 14; and

(c) contacting the substrate with the selector composition; and

(III) activating the surface of a non-conductive or carbon-fibres containing substrate for metallization, the activation method comprising the steps of

(a) providing the substrate treated according to step (II);

(b) providing an aqueous, palladium-free activation composition comprising

(i) a first species of dissolved transition metal ions and additionally metal particles thereof,

(ii) one or more than one complexing agent, and

(iii) permanently or temporarily one or more than one reducing agent, and

(iv) optionally one or more than one second species of dissolved metal ions being different from the first species,

wherein

- at least of the first species, the dissolved transition metal ions and the metal particles thereof are present in a reversible equilibrium, with the proviso that

- the metal particles are formed from the dissolved transition metal ions through a continuous or semi-continuous reduction through the one or more than one reducing agent,
- the dissolved transition metal ions are formed from the metal particles through continuous or semi-continuous oxidation of said particles, and
- the dissolved transition metal ions and the metal particles thereof, respectively, are repeatedly involved in said reduction and said oxidation such that no precipitating agglomerates of said metal particles are formed; and

(c) contacting the substrate with said activation composition such that a transition metal or a transition metal alloy is deposited on the surface of said substrate and an activated surface for metallization is obtained.

2. The method of claim 1, wherein during and/or after step (III)(c) the majority of said metal particles is subjected to said oxidation.

3. The method of claim 1 or 2, wherein the first species is copper or cobalt, preferably copper.

4. The method of any of the aforementioned claims, wherein the metal particles of the first species in the activation composition are colloidal metal particles.

5. The method of any of the aforementioned claims, wherein the metal particles of the first species are continually or semi-continually formed *in situ* in the activation composition by said reduction after and/or during one or more than one step (III)(c) is carried out.

6. The method of any of the aforementioned claims, wherein the one or more than one reducing agent comprises a boron-containing reducing agent, preferably a borohydride.

7. The method of any of the aforementioned claims, wherein the activation composition is substantially free of or does not comprise tin ions, preferably is substantially free of or does not comprise tin ions, lead ions, germanium ions, gallium ions, antimony ions, bismuth ions, and aluminium ions, more preferably is substantially free of or does not comprise metal ions of main groups III, IV, and V of the periodic table of elements.

8. The method of any of the aforementioned claims, wherein the activation composition is substantially free of or does not comprise a compound preventing the oxidation of the metal particles and/or is substantially free of or does not comprise a stabilizer compound to stabilize the metal particles.

9. The method of any of the aforementioned claims, wherein the one or more than one reducing agent is continually or semi-continually added to the activation composition such that further metal particles are continually or semi-continually, respectively, formed from the dissolved transition metal ions of the first species, preferably added after one or more than one step (III)(c) is carried out.

10. The method of any of the aforementioned claims, wherein the dissolved transition metal ions are formed from the metal particles through oxidation by ambient air and/or oxygen gas.

11. A method for metallizing an activated surface of a non-conductive or carbon-fibres containing substrate, the method comprising the steps

(A) providing the non-conductive or carbon-fibres containing substrate with the activated surface for metallization obtained by a method according to any of claims 1 to 10; and

(B) metallizing the activated surface by contacting the activated surface with a first metallizing solution such that a first metallization layer is deposited on the activated surface.

12. A method for preparing an aqueous, palladium-free activation composition for activating a surface of a non-conductive or carbon-fibres containing substrate for metallization, the method comprising the steps

(1) providing an aqueous starting solution comprising

- a first species of dissolved transition metal ions, and
- one or more than one complexing agent, and
- optionally one or more than one second species of dissolved metal ions being different from the first species; and

(2) continually or semi-continually adding one or more than one reducing agent to the starting solution such that metal particles of at last the first species of dissolved transition metal ions are continually or semi-continually, respectively, formed in the solution,

with the proviso that said metal particles are continually or semi-continually oxidized to form dissolved transition metal ions of the first species, wherein the method is used to provide the aqueous, palladium-free activation composition according to any of the claims 1 -10.

13. The selector composition according to claim 1, which

(i) comprises

a) a first nitrogen-containing compound which is selected from ammonia, monoethanolamine, triethanolamine or mixtures thereof; and

b) a second nitrogen-containing compound which is selected from guanidine, guanidine compounds such as guanidinium salts, or mixtures thereof; and

(ii) has a pH of from 9 to 12.

14. The selector composition according to claim 13, wherein

in the selector composition the concentration of the first nitrogen-containing compound is of from 1 g/L to 50 g/L, preferred of from 2 g/L to 40 g/L, more preferred of from 3 g/L to 35 g/L, more preferred of from 5 g/L to 30 g/L, and

in the selector composition the concentration of the second nitrogen-containing compound is of from 1 g/L to 10 g/L, preferred of from 2 g/L to 8 g/L, more preferred of from 3 g/L to 7 g/L, more preferred of from 4 g/L to 6 g/L..