CLAIMS

1. A wire comprising a wire core with a surface, the wire core having a coating layer superimposed on its surface, wherein the wire core itself is a silver-based wire core, wherein the coating layer is a double-layer comprised of a 1 to 100 nm thick inner layer of nickel or palladium and an adjacent 1 to 250 nm thick outer layer of gold, characterized in that the wire exhibits a total carbon content of ≤ 40 wt.-ppm.

2. The wire of claim 1 having an average cross-section in the range of from 50 to 5024 μm^2.

3. The wire of claim 1 having a circular cross-section with an average diameter in the range of from 8 to 80 µm.

4. The wire of any one of the preceding claims, wherein the inner layer of nickel or palladium is 1 to 30 nm thick.

5. The wire of any one of the preceding claims, wherein the outer layer of gold is 20 to 200 nm thick.

6. The wire of any one of the preceding claims, wherein the outer gold layer comprises at least one member selected from the group consisting of antimony, bismuth, arsenic and tellurium in a total proportion in the range of 10 to 100 wt.-ppm based on the weight of the wire.

7. The wire of claim 6, wherein the total proportion of said at least one member is in the range of 300 to 3500 wt.-ppm based on the weight of the gold of the gold layer.

8. The wire of any one of the preceding claims, wherein the wire's total carbon content is in the range of 10 to 30 wt.-ppm.

9. The wire of any one of the preceding claims, wherein the wire exhibits a carbon content of ≤ 3 mg carbon per square meter of the wire surface.

10. The wire of claim 9, wherein the carbon content of the wire surface is in the range of 0.5 to 2.5 mg carbon per square meter.

11. A process for the manufacture of a coated wire of any one of the preceding claims, wherein the process comprises at least the steps (1) to (5):

(1) providing a silver-based precursor item,

(2) elongating the precursor item to form an elongated precursor item, until an intermediate cross-section in the range of from 706 to 31400 μm^2 or an intermediate diameter in the range of from 30 to 200 µm is obtained,

(3) applying a double-layer coating of an inner layer of nickel or palladium and an adjacent outer layer of gold on the surface of the elongated precursor item obtained after completion of process step (2),

(4) further elongating the coated precursor item obtained after completion of process step (3) until a desired final cross-section or diameter and a double-layer comprised of an inner layer of nickel or palladium having a desired final thickness in the range of 1 to 100 nm and an adjacent outer layer of gold having a desired final thickness in the range of 1 to 250 nm is obtained, and

(5) finally strand annealing the coated precursor obtained after completion of process step (4) at an oven set temperature in the range of from 200 to 600 °C for an exposure time in the range of from 0.4 to 0.8 seconds and quenching it to form the coated wire,

wherein step (2) may include one or more sub-steps of intermediate batch annealing of the precursor item at an oven set temperature of from 400 to 800 °C for an exposure time in the range of from 50 to 150 minutes, and

wherein the application of the gold layer in step (3) is performed by electroplating it from a gold electroplating bath comprising gold,

wherein the quenching is performed in water or, preferably, in an aqueous quenching solution comprising or consisting of water and at least one quenching additive, the latter being present in an amount resulting in a total organic carbon content of the aqueous quenching solution of ≤ 10 mg per liter.

12. The process of claim 11, wherein the nickel or palladium layer is applied by electroplating.

13. The process of claim 11 or 12, wherein the total organic carbon content of the aqueous quenching solution is in the range of > 0.0001 to 10 mg per liter.

14. The process of any one of claims 11 to 13, wherein at least one quenching additive is selected from the group consisting of anionic surfactants and water-soluble organic solvents.