Claims

1. A process for producing electrodes for solar cells, the electrode being configured as an electrically conductive layer on a substrate (1) for solar cells, which comprises the following steps:

   a) transferring a dispersion comprising electrically conductive particles from a carrier (7) to the substrate (1) by irradiating the dispersion with a laser (9),
   b) drying and/or hardening the dispersion transferred to the substrate (1) to form the electrically conductive layer.

2. The process according to claim 1, wherein the transfer in step a) is preceded by application of the dispersion to the carrier (7).

3. The process according to claim 2, wherein the dispersion is applied to the carrier (7) by a coating process, especially by a printing, casting, rolling or spraying process.

4. The process according to any one of claims 1 to 3, wherein the dispersion is stirred and/or pumped in circulation and/or heat treated in a reservoir vessel (17) before the application to the carrier.

5. The process according to any one of claims 1 to 4, wherein the laser (9) is a solid-state laser, a fiber laser, a diode laser, a gas laser or an excimer laser.

6. The process according to any one of claims 1 to 5, wherein the laser (9) generates a laser beam with a wavelength in the range from 150 to 10 600 nm.

7. The process according to any one of claims 1 to 6, wherein the electrically conductive particles comprise at least one metal and/or carbon.

8. The process according to claim 7, wherein the electrically conductive particles comprise a metal which is selected from the group consisting of aluminum, silver, copper, nickel, titanium, platinum and palladium.

9. The process according to any one of claims 1 to 8, wherein the electrically conductive particles have different particle geometries.

10. The process according to any one of claims 1 to 9, wherein the dispersion comprises an absorbent.

11. The process according to claim 10, wherein the absorbent is carbon or lanthanum hexaboride.

12. The process according to any one of claims 1 to 11, wherein the dispersion comprises a glass frit.

13. The process according to any one of claims 1 to 12, wherein the electrically conductive layer, after drying and/or hardening, is coated electrolessly and/or electrocoated.

14. The process according to any one of claims 1 to 13, wherein the electrically conductive layer is fired.

15. The process according to claim 13 or 14, wherein the electroless coating and/or electrocoating of the electrically conductive layer is preceded by removal of an oxide layer which may be present from the electrically conductive particles.

16. The process according to any one of claims 1 to 15, wherein the dispersion is applied to the topside and the bottomside of the substrate to form the electrically conductive layer.

17. The process according to any one of claims 1 to 16, wherein the carrier is a rigid or flexible plastic or glass which is transparent to the laser radiation used.

Claims:

1. A process for producing an electrode for a solar cell, the process comprising: a) transferring a dispersion comprising electrically conductive particles from a carrier to a substrate by irradiating the dispersion with a laser, b) drying, hardening, or both drying and hardening the dispersion which has been transferred to the substrate, to form an electrically conductive layer, wherein the electrode is configured as the electrically conductive layer on the substrate for the solar cell.

2. The process according to claim 1, wherein the transferring in a) is preceded by applying the dispersion to the carrier.

3. The process according to claim 2, wherein the dispersion is applied to the carrier by a coating process.

4. The process of claim 3, wherein the coating process is a printing, casting, rolling, or spraying process.

5. The process according to claim 3, further comprising at least one operation selected from the group consisting of stirring, pumping in circulation, and heat treating the dispersion in a reservoir vessel before the applying to the carrier.

6. The process according to claim 2, further comprising at least one operation selected from the group consisting of stirring, pumping in circulation, and heat treating the dispersion in a reservoir vessel before application to the carrier.

7. The process according to claim 1, wherein the laser is a solid-state laser, a fiber laser, a diode laser, a gas laser, or an excimer laser.

8. The process according to claim 1, wherein the laser generates a laser beam with a wavelength in a range from 150 to 10 600 nm.

9. The process according to claim 1, wherein the electrically conductive particles comprise at least one selected from the group consisting of a metal and carbon.

10. The process according to claim 9, wherein the electrically conductive particles comprise a metal selected from the group consisting of aluminum, silver, copper, nickel, titanium, platinum, and palladium.

11. The process according to claim 1, wherein the electrically conductive particles have different particle geometries.

12. The process according to claim 1, wherein the dispersion comprises an absorbent.

13. The process according to claim 12, wherein the absorbent is carbon or lanthanum hexaboride.

14. The process according to claim 1, wherein the dispersion comprises a glass frit.

15. The process according to claim 1, wherein the electrically conductive layer, after drying, hardening, or both drying and hardening, is subjected to electroless coating, electrocoating, or both electroless coating and electrocoating.

16. The process according to claim 15, wherein the electroless coating, the electrocoating, or both the

electroless coating and the electrocoating of the electrically conductive layer is preceded by removing an oxide layer, which is optionally present, from the electrically conductive particles.

17. The process according to claim 1, wherein the electrically conductive layer is fired.

18. The process according to claim 1, wherein the dispersion is applied to a topside and a bottomside of the substrate to form the electrically conductive layer.

19. The process according to claim 1, wherein the carrier is a rigid or flexible plastic or glass which is transparent to the laser.