Claims

1. A method for the preparation of a working electrode ~~(122)~~ on a sensor substrate ~~(114)~~, the method comprising:
   a) providing at least one sensor substrate ~~(114)~~ comprising at least a first side ~~(120)~~, the first side ~~(120)~~ comprising at least one conductive trace ~~(111)~~;
   b) applying at least one layer of at least one sensing material ~~(118)~~ onto the first side ~~(120)~~ of the sensor substrate ~~(114)~~, wherein the sensing material ~~(118)~~ covers at least a portion of the at least one conductive trace ~~(111)~~; and
   c) irradiating the layer of the sensing material with at least one laser beam, wherein in at least a first portion of the layer of the sensing material ~~(118)~~ is at least partially removed and wherein at least a second portion of the sensing material ~~(118)~~ covering the at least one conductive trace ~~(111)~~ is preserved on the first side ~~(120)~~ of the sensor substrate ~~(114)~~ to obtain at least one working electrode ~~(122)~~ on the sensor substrate ~~(114)~~,
   e) applying at least one membrane layer, the membrane layer at least partially covering the working electrode ~~(122)~~, wherein the membrane layer comprises at least one cross-linker for cross-linking at least a part of the sensing material ~~(118)~~, wherein the method further comprises:
   f) at least one diffusion step, wherein in the diffusion step the cross-linker comprised in the membrane layer at least partially diffuses into the sensing material ~~(118)~~.

2. The method according to claim 1, comprising an additional step bb) of drying the at least one layer of the at least one sensing material, prior to step c).

3. The method according to any one of claims 1 or 2, wherein the method further comprises:
   d) at least one curing step, wherein in the curing step at least a part of the sensing material ~~(118)~~ is cross-linked.

4. The method according to claim 3, wherein step d) is performed at least partially after performing step c).

5. The method according to any one of claims 1 to 4, wherein the crosslinker comprised in the membrane layer comprises at least one bi- and/or multivalent epoxide based cross-linker of low molecular weight.

6. The method according to any one of claims 1 to 5, wherein the conductive trace ~~(111)~~ comprises at least one conductive material selected from the group consisting of: carbon; gold; copper; silver; nickel; platinum; palladium.

7. The method according to claim 6, wherein the conductive trace ~~(111)~~ comprises at least one further layer of at least one further material.

8. The method according to any one of claims 1 to 7, wherein the conductive trace ~~(111)~~ has a thickness of at least 7 µm.

9. An analyte sensor ~~(124)~~ comprising at least one working electrode ~~(122)~~ obtainable by a method according to any one of claims 1 to 8 and at least one further electrode.

10. An analyte sensor ~~(124)~~, comprising:

A) at least one sensor substrate ~~(114)~~ comprising at least one first side ~~(120)~~, the first side ~~(120)~~ comprising at least one conductive trace ~~(111)~~;

B) at least one layer of at least one sensing material ~~(118)~~ disposed onto the first side ~~(120)~~ of the sensor substrate ~~(114)~~, wherein the sensing material ~~(118)~~ covers at least a portion of the at least one conductive trace ~~(111)~~, and wherein the layer of the sensing material ~~(118)~~ is irradiated with at least one laser beam wherein the first portion of the layer of the sensing material is at least partially removed, such that a second portion of the sensing material ~~(118)~~ covering the conductive trace ~~(111)~~ is preserved on the first side ~~(120)~~ of the sensor substrate ~~(114)~~, wherein said second portion of the sensing material in conjunction with the conductive trace ~~(111)~~, forms at least one working electrode ~~(122)~~ of the analyte sensor ~~(124)~~.

11. Use of the analyte sensor ~~(124)~~ according to claim 9 or 10 for detecting at least one analyte in a sample.

12. Method for measuring an analyte in a sample comprising using the analyte sensor ~~(124)~~ according to claim 9 or 10.