

CLAIMS

1. A device (1) for measuring an amount of dirt (50), the device (1) comprising:
- a receiver (2) configured to receive a sample collector (40), the sample collector (40) having a front surface (42) and a back surface (44), wherein a dirt sample is attached to the front surface (42) of the sample collector (40);
 - a first contact (11) configured to be placed in contact with the front surface (42) of the received sample collector (40) at a first contact point and a second contact (12) configured to be placed in contact with the front surface (42) of the received sample collector (40) at a second contact point, the first and second contact being electrically conductive;
 - an electrically conductive surface (14);
 - an aligner (20) configured to position the electrically conductive surface (14) in contact with the back surface (44) of the received sample collector (40), wherein, when the electrically conductive surface (14) is positioned by the aligner (20):
 - a first part of the electrically conductive surface (14) is placed in contact with the back surface (44) of the sample collector (40) at a point transverse to the first contact point on the front surface (42); and
 - a second part of the electrically conductive surface (14) is placed in contact with the back surface (44) of the sample collector (40) at a point transverse to the second contact point on the front surface (42); the device (1) further comprising
 - a resistance meter (30) configured to measure an electrical resistance between the first (11) and the second contact (12),
 - wherein, when the first (11) and second contact (12) are placed in contact with the front surface (42) and the electrically conductive surface (14) is placed in contact with the back surface (44), the measured electrical resistance between the first (11) and second contact (12) represents the amount of dirt (50) of the dirt sample, the represented amount of dirt (50) being situated on the front surface (42) of the sample collector (40) between the first (11) and second contact (12).
2. The device (1) of claim 1, wherein the aligner (20) comprises:
- a front portion (22), the first (11) and second contact (12) being attached to the front portion (22);

a back portion (24), the electrically conductive surface (14) being attached to the back portion (24);

a hinge (26) which mechanically connects the front portion (22) with the back portion (24), wherein the hinge (26) allows rotational movement of the front portion (22) in relation to the back portion (24), the hinge (26) having a rotationally open position in which the receiver (2) is free to receive the sample collector (40), and

a rotationally closed position in which the electrically conductive surface (14) is in contact with the back surface (44) of the received sample collector (40);

wherein the front portion (22), the back portion (24) and the hinge (26) are configured to position the electrically conductive surface (14) in contact with the back surface (44) of the received sample collector (40) when the hinge (26) is in the rotationally closed position.

3. The device (1) of any one of the preceding claims, wherein the electrically conductive surface (14) and the aligner (20) are configured such that when the electrically conductive surface (14) is positioned by the aligner (20) an sample-collector/electrically-conductive-surface interface (SC/ECS interface) covers:

a transverse representation of a sample-collector/first-contact interface (SC/1C interface); and

a transverse representation of a sample-collector/second-contact interface (SC/2C interface);

wherein:

the SC/ECS interface represents an interface between the back surface (44) of the received sample collector (40) in contact with the electrically conductive surface (14);

the SC/1C interface represents an interface between the front surface (42) of the received sample collector (40) in contact with the first contact (11), the transverse representation of the SC/1C interface being an area on the back surface (44) defined by a transverse translation of the SC/1C interface from the front surface to the back surface;

the SC/2C interface represents an interface between the front surface (42) of the received sample collector (40) in contact with the second contact (12), the transverse representation of the SC/2C interface being an area on

the back surface (44) defined by a transverse translation of the SC/2C interface from the front surface (42) to the back surface (44).

4. The device (1) of claim 3, wherein the electrically conductive surface (14) and the aligner (20) are configured such that when the electrically conductive surface (14) is positioned by the aligner (20) the sample-collector/electrically-conductive-surface interface (SC/ECS interface) additionally covers:
- a transverse representation of a sample measurement area;
- 10 wherein the sample measurement area is an area on the front surface (42) of the sample collector (40) which extends between the first (11) and the second contact (12), the transverse representation of the sample measurement area being an area on the back surface (44) defined by a transverse translation of the sample measurement area from the front surface (42) to the back surface (44).
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5. The device (1) of any one of the preceding claims, wherein the device (1) further comprises
- a contact pressure controller (60) configured to set a pressure exerted on the sample collector (40) by the electrically conductive surface (14) and at least one of the first (11) and the second contact (12) when the first (11) and second contact (12) are placed in contact with the front surface (42) and the electrically conductive surface (14) is placed in contact with the back surface (44).
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6. A system for measuring an amount of dirt (50), the system comprising:
- the device (1) of any one of claims 1 to 5;
 - a memory (70) configured to store a relation between measured electrical resistance and amount of dirt (50) situated on the front surface (42) of the sample collector (40) between the first (11) and second contact (12);
- 30 and
- a processor (72) configured to:
 - receive the measured electrical resistance from the resistance meter (30),
 - 35 receive the relation from the memory (70), and to
 - calculate the amount of dirt (50) using the measured electrical resistance and the relation.

7. A method (100) for measuring an amount of dirt (50), the method (100) comprising:

- receiving (S102) a sample collector (40), the sample collector (40)
 - 5 having a front surface (42) and a back surface (44), wherein a dirt sample is attached to the front surface (42) of the sample collector (40);
 - placing (S104) a first contact (11) in contact with the front surface (42) of the received sample collector (40) at a first contact point and placing a second contact (12) in contact with the front surface (42) of the received
 - 10 sample collector (40) at a second contact point;
 - positioning (S106) an electrically conductive surface (14) in contact with the back surface (44) of the received sample collector (40), wherein, when the electrically conductive surface (14) is positioned (S106):
 - a first part of the electrically conductive surface (14) is placed in
 - 15 contact with the back surface (44) of the sample collector (40) at a point transverse to the first contact point on the front surface (42); and
 - a second part of the electrically conductive surface (14) is placed in contact with the back surface (44) of the sample collector (40) at a point transverse to the second contact point on the front surface (42); the
 - 20 method (100) further comprising
 - measuring an electrical resistance between the first (11) and the second contact (12),
 - wherein, when the first (11) and second contact (12) are placed in contact with the front surface (42) and the electrically conductive surface (14)
 - 25 is positioned (S106) in contact with the back surface (44), the measured electrical resistance between the first (11) and second contact (12) represents the amount of dirt (50) of the dirt sample, the represented amount of dirt (50) being situated on the front surface (42) of the sample collector (40) between the first (11) and second contact (12).

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8. The method (100) of claim 7, wherein the electrically conductive surface (14) is positioned (S106) such that an sample-collector/electrically-conductive-surface interface (SC/ECS interface) covers:

- a transverse representation of a sample-collector/first-contact
- 35 interface (SC/1C interface); and
- a transverse representation of a sample-collector/second-contact interface (SC/2C interface);

wherein:

the SC/ECS interface represents an interface between the back surface (44) of the received sample collector (40) in contact with the electrically conductive surface (14);

5 the SC/1C interface represents an interface between the front surface (42) of the received sample collector (40) in contact with the first contact (11), the transverse representation of the SC/1C interface being an area on the back surface (44) defined by a transverse translation of the SC/1C interface from the front surface (42) to the back surface (44);

10 the SC/2C interface represents an interface between the front surface (42) of the received sample collector (40) in contact with the second contact (12), the transverse representation of the SC/2C interface being an area on the back surface (44) defined by a transverse translation of the SC/2C interface from the front surface (42) to the back surface (44).

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9. The method (100) of claim 8, wherein the electrically conductive surface (14) is positioned (S106) such that the sample-collector/electrically-conductive-surface interface (SC/ECS interface) additionally covers:

a transverse representation of a sample measurement area;

20 wherein the sample measurement area is an area on the front surface (42) of the sample collector (40) which extends between the first (11) and the second contact (12), the transverse representation of the sample measurement area being an area on the back surface (44) defined by a transverse translation of the sample measurement area from the front surface
25 (42) to the back surface (44).

10. The method (100) of any one of claims 7 to 9, wherein the method (100) further comprises

30 controlling (S108) a contact pressure to set a pressure exerted on the sample collector (40) by the electrically conductive surface (14) and at least one of the first (11) and the second contact (12) when the first (11) and second contact (12) are placed in contact with the front surface (42) and the electrically conductive surface (14) is placed in contact with the back surface (44).

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11. The method (100) of any one of claims 7 to 10, wherein the method (100) further comprises:

receiving (S110) a measured electrical resistance from the resistance meter (30);

receiving (S112) a relation between measured electrical resistance and amount of dirt (50) situated on the front surface (42) of the sample collector

5 (40) between the first (11) and second contact (12);

calculating (S114) the amount of dirt (50) using the measured electrical resistance and the relation.

12. A kit of parts comprising:

10 a sample collector (40) comprising a front surface (42) and a back surface (44), the sample collector (40) being configured to collect a dirt sample from an object (52) when the object (52) is wiped with the front surface (42) of the sample collector (40), the sample collector (40) having one or more electrical resistance properties; and

15 the system of claim 6,

wherein the relation stored in the memory (70) of the system, that is a relation between measured electrical resistance and amount of dirt (50) situated on the front surface (42) of the sample collector (40) between the first (11) and second contact (12), includes at least one electrical
20 resistance property of the sample collector (40).

13. The kit of parts of claim 12, wherein the sample collector is a microfiber cloth.

25 14. The kit of parts of claim 13, wherein the microfiber cloth weight per square meter is below a threshold, the threshold being 600 grams per square meter.

30 15. The kit of parts of claim 13 or 14, the kit of parts further comprising a block (46), wherein the block (46) is configured to receive the microfiber cloth on a flat surface such that when the flat surface of the block (46) is wiped over a flat surface of the object (52) the microfiber cloth is pressed between the flat surface of the block (46) and the flat surface of the object (52).