Patent Claims

1. Measuring apparatus in the form of a reflection probe (1), comprising a measurement position in the form of a window (9) in a window surface (3) and a cleaning device in the form of a flushing nozzle in a front surface (2), characterized in that the window (9) is integrated in a planar fashion into the window surface (3), which is inclined at an angle of from 10° to 25° relative to the front surface (2) of the measuring apparatus, the flushing nozzle being integrated into the front surface (2) which is reduced by the proportion of the window surface (3), and the outlet opening (5) of the flushing nozzle being located adjacent to the window surface (3) in the front surface (2).

2. Measuring apparatus according to Claim 1, characterized in that the opening (4) for the window (9) is configured as an excision that has an opening in the direction of the process space, which has an area larger than the area of the opening of the excision on the opposite side, the window (9) having the shape and area of the opening in the direction of the process space.

3. Measuring apparatus according to Claim 1 or 2, characterized in that the window (9) is a body which on the side of the window surface has the same setting angle relative to the front surface as the window surface but is parallel to the front surface on the opposite side.

4. Measuring apparatus according to one of the preceding claims, characterized in that the outlet opening (5) of the flushing nozzle is configured in the form of a slot or slit on the edge formed by contact of the front surface with the window surface.

5. Measuring apparatus according to Claim 4, characterized in that the ratio of the width of the slot or slit to its height is at least 5.

6. Measuring apparatus according to one of the preceding claims, characterized in that the outlet opening (5) of the flushing nozzle has an extent parallel to the front surface at least equal to the extent of the window (9) perpendicularly to the outlet opening (5).

7. Measuring apparatus according to one of the preceding claims, characterized in that the flushing nozzle is supplied with a flushing fluid via a supply line (8), and the supply line (8) is offset relative to the outlet opening (5) of the flushing nozzle along an extended line between the window (9) and the flushing nozzle.

8. Measuring apparatus according to one of the preceding claims, characterized in that it has a case comprising a bore (7) for receiving a probe shaft, in which bore the probe shaft is screwed or clamped.

9. Measuring apparatus according to one of the preceding claims, characterized in that the probe shaft is mounted securely against rotation in the bore (7) in order to receive the probe shaft by means of a spring-loaded connector with protection against rotation.

10. Use of the measuring apparatus according to one of Claims 1 to 9 in pharmaceutical and food technology processes for the spectroscopic monitoring thereof.

11. Use of the measuring apparatus according to one of Claims 1 to 9 in paddle dryers and granulators.

CLAIMS

1. Measuring apparatus in the form of a reflection probe, comprising a measurement position in the form of a window in a window surface and a cleaning device in the form of a flushing nozzle in a front surface, characterized in that the window is integrated in a planar fashion into the window surface, which is inclined at an angle of from 10.degree. to 25.degree. relative to the front surface of the measuring apparatus, the flushing nozzle being integrated into the front surface which is reduced by the proportion of the window surface, and the outlet opening of the flushing nozzle being located adjacent to the window surface in the front surface.

2. Measuring apparatus according to claim 1, characterized in that the opening for the window is configured as an excision that has an opening in the direction of the process space, which has an area larger than the area of the opening of the excision on the opposite side, the window having the shape and area of the opening in the direction of the process space.

3. Measuring apparatus according to claim 2, characterized in that the window is a body which on the side of the window surface has the same setting angle relative to the front surface as the window surface but is parallel to the front surface on the opposite side.

4. Measuring apparatus according to claim 2, characterized in that the outlet opening of the flushing nozzle has an extent parallel to the front surface at least equal to the extent of the window perpendicularly to the outlet opening.

5. Measuring apparatus according to claim 2, characterized in that the flushing nozzle is supplied with a flushing fluid via a supply line, and the supply line is offset relative to the outlet opening of the flushing nozzle along an extended line between the window and the flushing nozzle.

6. Measuring apparatus according to claim 2, characterized in that it has a case comprising a bore for receiving a probe shaft, in which bore the probe shaft is screwed or clamped.

7. Measuring apparatus according to claim 1, characterized in that the window is a body which on the side of the window surface has the same setting angle relative to the front surface as the window surface but is parallel to the front surface on the opposite side.

8. Measuring apparatus according to claim 7, characterized in that the outlet opening of the flushing nozzle is configured in the form of a slot or slit on the edge formed by contact of the front surface with the window surface.

9. Measuring apparatus according to claim 1, characterized in that the outlet opening of the flushing nozzle is configured in the form of a slot or slit on the edge formed by contact of the front surface with the window surface.

10. Measuring apparatus according to claim 9, characterized in that the ratio of the width of the slot or slit to its height is at least 5.

11. Measuring apparatus according to claim 1, characterized in that the outlet opening of the flushing nozzle has an extent parallel to the front surface at least equal to the extent of the window perpendicularly to the outlet opening.

12. Measuring apparatus according to claim 1, characterized in that the flushing nozzle is supplied with a flushing fluid via a supply line, and the supply line is offset relative to the outlet opening of the flushing nozzle along an extended line between the window and the flushing nozzle.

13. Measuring apparatus according to claim 1, characterized in that it has a case comprising a bore for receiving a probe shaft, in which bore the probe shaft is screwed or clamped.

14. Measuring apparatus according to claim 13, characterized in that the probe shaft is mounted securely against rotation in the bore in order to receive the probe shaft by means of a spring-loaded connector with protection against rotation.

15. A method of using the measuring apparatus according to claim 1, comprising the step of incorporating the measuring apparatus in pharmaceutical and food technology processes for the spectroscopic monitoring thereof.

16. A method of using the measuring apparatus according to claim 1 comprising the step of placing or affixing the measuring apparatus at a location where the measuring apparatus can monitor the contents of a paddle dryer or a granulator.