Claims

1. A distribution body (1) for a process fluid (6) for chemical and/or electrolytic surface treatment of a substrate (4), comprising:

   - a front face (2),
   - a rear face (3),
   - at least an inlet (5),
   - an outlet array (20), and
   - a flow control array (21),

   wherein the front face (2) is configured to be directed towards the substrate (4) for the surface treatment of the substrate (4),
   wherein the rear face (3) is arranged opposite to the front face (2),
   wherein the inlet (5) is configured for an entry of the process fluid (6) into the distribution body (1),
   wherein the outlet array (20) comprises several outlets (8), which are configured for an exit of the process fluid (6) out of the distribution body (1) and towards the substrate (4),
   wherein the flow control array (21) is arranged upstream of the outlet array (20) with respect to a flow of the process fluid (6),
   wherein the flow control array (21) comprises several flow control elements (30), and
   wherein all of the flow control elements (30) are arranged upstream of the outlet array (20) with respect to a flow of the process fluid (6).

2. Distribution body (1) according to claim 1, wherein the flow control elements (30) are arranged in a pattern to achieve a turbulent flow of the process fluid (6) towards the outlet array (20).

3. Distribution body (1) according to one of the preceding claims, wherein the flow control elements (30) are arranged in a pattern to achieve Reynolds numbers of at least 5000 in the process fluid (6).

4. Distribution body (1) according to one of the preceding claims, wherein at least some of the flow control elements (30) extend between the front face (2) and the rear face (3) and are in contact with the front face (2) and the rear face (3).

5. Distribution body (1) according to one of the preceding claims, wherein at least some of the flow control elements (30) are pillar shaped.

6. Distribution body (1) according to one of the claims 1 to 3, wherein at least some of the flow control elements (30) extend between the front face (2) and the rear face (3) and are only in contact with one of the front face (2) or the rear face (3).

7. Distribution body (1) according to the preceding claim, wherein at least some of the flow control elements (30) are shaped as stalactites or stalagmites.

8. Distribution body (1) according to one of the preceding claims, wherein at least some of the flow control elements (30) have a patterned surface, in particular a golf ball kind of surface.

9. Distribution body (1) according to one of the preceding claims, wherein at least some of the several flow control elements (30) have different sizes and in particular different diameters relative to each other.

10. Distribution body (1) according to one of the preceding claims, wherein at least some of the flow control elements (30) have a constant cross-section along their length.

11. Distribution body (1) according to one of the claims 1 to 9, wherein at least some of the flow control elements (30) have a cross-section of varying size along the length of the flow control elements (30).

12. Distribution body (1) according to one of the preceding claims, wherein at least some of the several flow control elements (30) are arranged with different distances to each other.

13. A distribution system (40) for chemical and/or electrolytic surface treatment of a

substrate (4) in a process fluid (6), comprising:

- a distribution body (1) according to one of the proceeding claims, and
- a substrate holder,

wherein the substrate holder is configured to hold at least one substrate (4) relative to an outlet array (20) of the distribution body (1).

14. A use of a distribution body (1) or a distribution system (40) according to one of the proceeding claims for a chemical and/or electrolytic surface treatment of a substrate (4) in a process fluid (6), in particular for a large substrate (4) with diagonals or diameters in a range of 300 mm and larger, preferably 800 mm and larger, and more preferably 1000 mm and larger.

15. A distribution method for a process fluid (6) for chemical and/or electrolytic surface treatment of a substrate (4), comprising the following steps:
- providing a distribution body (1) according to one of the claims 1 to 12, and
- providing a flow of process fluid (6) from at least an inlet (5) of the distribution body (1) through a flow control array (21) of the distribution body (1) to outlets (8) of the distribution body (1) and towards the substrate (4).