Patent claims

1. A method for producing a composite body comprising a first layer of a material having a high silicic acid content and a first additional component in a first concentration connected to a second layer of a material having a high silicic acid content and a second additional component in a second concentration that differs from the first concentration, wherein the first and the second concentrations are greater than or equal to zero, the method comprising the following steps:

(a) preparing a first slurry layer having a free surface from a first slurry mass containing first SiO_2 particles and the first additional component in the first concentration dispersed in a first dispersing agent,

(b) providing a second slurry mass containing second SiO_2 particles and the second additional component in a second concentration that differs from the first concentration, dispersed in a second dispersing agent,

(c) forming a composite-body intermediate product by applying the second slurry mass to the free surface of the first slurry layer, and´

(d) heating the composite-body intermediate product while forming the composite body.

2. The method according to claim 1, wherein each of the first and the second SiO_2-containing slurry masses has a solids content of at least 65% by wt.

3. The method according to claim 1, wherein the solids contents of the first and the second SiO_2-containing slurry masses differ by not more than 5% by wt.

4. The method according to claim 1, wherein the preparation of the first slurry layer according to step (a) and the formation of the composite-body intermediate product according to step (c) are carried out by introducing the first and the second SiO_2 slurry masses into an absorbent mold one after the other.

5. The method according to claim 1, wherein the preparation of the first slurry layer according to step (a) comprises a settling phase of at least 30 minutes, followed by removing a supernatant of the first slurry mass from the surface of the first slurry layer.

6. The method according to claim 1, wherein the second SiO_2-containing slurry mass is applied by a pouring stream guided at an angle in a range of 3° to 15° relative to the free surface of the first slurry layer.

7. The method according to claim 6, wherein the pouring stream has an elongated shape in a horizontal cross-section.

8. The method according to claim 1, wherein the first and the second SiO_2-containing slurry masses contain amorphous SiO_2 particles in a splintery and/or spherical form with particle sizes in a range of 1 µm to 50 µm.

9. The method according to claim 1, wherein at least one of the first and the second additional components contains silicon particles and/or carbon particles.

10. The method according to claim 9, wherein the silicon particles are contained with a solids content in a range of 0.1% by wt. to 5% by wt.

11. The method according to claim 9, wherein the carbon particles are contained with a solids content in a range of 0.01 % by wt. to 3% by wt.

12. The method according to claim 9, wherein the heating in step (d) is carried out at a temperature of not more than 1400°C while forming the composite body.

13.The method according to claim 9, wherein at least one of the first or second SiO_2-containing slurry masses forms a base body layer of the composite body.