

Bonding agent for the bonding of components, method for the bonding of components made of material with high silicic acid content, and component assembly obtained according to said method

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Abstract

In a known method for bonding components made of material with a high silicic acid content by means of a substance-to-substance bonding, a SiO₂-containing bonding mass is formed between the connecting surfaces of the components that has a chemical composition that is generic with regard to the material with a high
10 silicic acid content. In order to facilitate cost-efficient manufacture of a thermally stabile assembly based on this, the invention proposes that the formation of the SiO₂-containing bonding mass comprises the following procedural steps:

- (a) provision of an aqueous slurry containing amorphous SiO₂ particles;
- (b) formation of a slurry mass between the connecting surfaces which
15 are fixed in position with regard to each other;
- (c) drying of the slurry mass; and
- (d) solidification of the slurry mass by heating with formation of the SiO₂-containing bonding mass.

A component assembly manufactured according to the method of the invention
20 shows high temperature stability and temperature fatigue resistance and can also be used for contamination-sensitive applications. This assembly is characterized in that a SiO₂-containing bonding mass is provided that is manufactured from amorphous, sintered or vitrified SiO₂ particles with particle sizes in the range of up to 500 µm, whereby amorphous SiO₂ particles with particle sizes in the range
25 between 1 µm and 50 µm account for the largest volume fraction.

No Suitable Figure