

## **Biosilicate® — A multipurpose, highly bioactive glass-ceramic. In vitro, in vivo and clinical trials**

### **Datenbank**

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### **Deskriptoren**

Glaskeramik; In-Vivo-Untersuchung; In-Vitro-Untersuchung; klinischer Versuch; Bioglas; Bioaktivität; Knochengewebe; Tissue-Engineering; klinische Studie

### **Freie Begriffe**

Biosilikat; bioaktives Glas; In-Vitro-Bioaktivität; Goldstandard

### **Abstract**

In this review we critically analyze 28 theses and dissertations and over 30 scientific papers that tested Biosilicate®, a highly bioactive glass-ceramic, in a number of applications throughout the past 20 years. Biosilicate® presents a combination of positive features for bone tissue regeneration: it is highly bioactive, osteoconductive, osteoinductive, non-cytotoxic, non-genotoxic and has antibacterial properties. In addition, in the monolithic form, it is quite strong and tough. Its in vitro bioactivity is similar to that of the gold standard Bioglass 45S5. Biosilicate® has shown to be a very versatile, multipurpose biomaterial. It can be applied in powder, monolithic and 3D scaffold forms that could be easily machined during surgical procedures. This material has been successfully tested in a number of in vitro, in vivo and clinical studies, and several trials are ongoing. Biosilicate® is indeed a great option for a wide range of tissue engineering applications.

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