

Dr. Henning + Co.  
Dental Engineering

# Certificate

## Biocompatibility Test

**Material tested:** **WIRONIUM® extrahard**  
**Cobalt-Chrome Molybdenum Casting Alloy**

**Composition /  
in % by weight:**

Co 61.0	Cr 30.0	Mo 5.0	Si 1.0	Mn 2.0	Fe 0.5	N 0.33	C 0.17
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**Manufacturer:** **BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co.**  
Technologiepark Universität · Wilhelm-Herbst-Str. 1 · D-28359 Bremen

**Tests:** We confirm that the following tests for determining the biocompatibility of the dental alloy were carried out in accordance with the international standards ISO 10993: 1992, "Biological evaluation of medical devices" (ISO 10993-1, ISO 10993-5, ISO 10993-10, ISO 10993-12), DIN EN 30993-1: 1994, and DIN EN ISO 7405: 1998 "Dentistry – Preclinical evaluation of biocompatibility of medical devices used in dentistry – Test methods for dental materials". The tests were performed according to the OECD code "Good Laboratory Practice" (GLP) by the Institute BSL Bioservice, Germany. The tests were coordinated and monitored by Dr. Henning + Co., Switzerland. The specimens were produced by lost wax casting procedure by a commercial dental laboratory, according to the instructions of the manufacturer BEGO Bremer Goldschlägerei GmbH.

### Cytotoxicity:

The cytotoxic potential of the dental alloy was tested in vitro with L-929 fibroblasts. Method: "Test on extracts", XTT staining, ISO 10993-5, DIN EN 30993-5, ISO 10993-12 and DIN EN ISO 7405: 1998 (5.4.a.3).

**Test result:** **WIRONIUM® extrahard had no cytotoxic potential.**

### Allergenic sensitization:

Allergenic sensitization was tested with the Maximization Test according to Magnusson and Kligman. ISO 10993-10: 1995, (6.3), "Tests for irritation and sensitization", DIN EN ISO 7405: 1998 (5.4.b.5), OECD 406-92 and Directive 92/69 EEC B.6.

**Test result:** **WIRONIUM® extrahard did not cause allergenic sensitization.**

Dr. Henning + Co.  
Dental Engineering  
Steinenvorstadt 13  
CH-4051 Basel

Basle, 23. 6. 98

