

NOBIL-METAL

KERAMIT 450+HV

ALLOY DATA

Porcelain-fused-to-metal alloy, white colour, copper free

Chemical composition

The analysis of the chemical composition of the alloy is performed by emission spectrometry. The composition of the alloy is reported in the table below:

Au	Pd	Ag	In	Sn	Ga	Re	Ru	Au&PGM
45.0%	38.9%	5.0%	8.6%	x	1.4%	x	x	84.0%

X= <1.0%

Technical data:

Density g/cm ³	13.6	Yield strength MPa	550 - 600
Melting range °C	1215 - 1305	Elongation %	19 - 10
Casting temperature °C	1400	Tensile Strength MPa	780 - 800
TEC 25-500°C / 25-600°C 10 ⁻⁶ K ⁻¹	13.9 - 14.2	Vickers hardness HV 5/30	240 - 270
Modulus of elasticity MPa	112	Crucible	ceramic

^{14B}

Solders:

Pre-solder: SOLDER 1120 (1145°C)
Post-solder: SOLDER K 10/5 (750°C) Z - SOLDER LFC (650°C)

Corrosion resistance

The electrochemical properties of this alloy were evaluated in an electrochemical cell built according to standards defined in ISO 10271.

The following results were obtained:

$$E_{\text{ocp}} = 92 \text{ mV} \quad E_p = 799 \text{ mV} \quad I_{300} = 2.88 \text{ } \mu\text{A}\cdot\text{cm}^{-2} \quad I_p = 7.0 \text{ } \mu\text{A}\cdot\text{cm}^{-2}$$

The high value of the breakdown potential (E_p 800mV) with the low current density at 300 mV (I_{300} 0.33 $\mu\text{A}\cdot\text{cm}^{-2}$) indicate the excellent corrosion resistance of this alloy.

Cytotoxicity testing

Cytotoxicity of KERAMIT 450 + HV alloy has been evaluated according to ISO 10993-5 standard, using the L-929 (mouse fibroblasts) cell line.

Results have confirmed the perfect cytocompatibility of this alloy. Cells behaviour and function were definitely similar to those measured in tests involving pure gold, that is the paradigmatic non-toxic material.

International standard : ISO 9693:1999; ISO 10271:2001; ISO 10993-5:1999

Specific properties

- ✧ Manufactured by HV technology
- ✧ Finer and more homogeneous crystal lattice
- ✧ The high Modulus of Elasticity makes the alloy recommended for implantology and telescopic crowns
- ✧ **Excellent stability at high temperatures even** at minimal thickness on the margins
- ✧ Excellent compatibility of the Thermal Expansion Coefficient (TEC) with the most important dental ceramics on the market