CENDRES+ MÉTAUX

Material Data Sheet

(37) - Ceramicor®

In the cast-on and veneered state the alloy corresponds to Type 3 of both standards "ANSI/ADA, Specification No. 5 for Dental Casting Gold Alloys" and "ISO 22674". In the cold-worked state it corresponds to Type 4 of these standards.

1. Composition

Au	(ISO 9202:1991)	60.00%
Pd		20.00%
Pt		19.00%
Ir		1.00%

2. Physical Properties

Melting range	1400-1490°C
Density	17.5 g/cm^3
Young's Modulus	136 GPa
Linear Coeff. of thermal expansion (25-500°C)	11.9 x10^{-6} K^{-1}
Linear Coeff. of thermal expansion (25-600°C)	12.2 x10^{-6} K^{-1}
Colour	white

3. Mechanical Properties

Condition	cold worked	soft	after firing	hardened
Parameters	15-75%KV	1000°C/60'/H2O	ISO 22674: 950°C+Geller Creation CC	1000°C/1h/H2O&700°C /60'/air
Hardness HV5	>215	150	155	200
Tensile strength (Rm)	>750 MPa	540 MPa	570 MPa	665 MPa
0.2% Proof stress (Rp 0.2%)	>650 MPa	360 MPa	335 MPa	510 MPa
Elongation	>2 %	25 %	37 %.	19 %

4. Biological Testing

Cytotoxity Test according to ISO 10993-5:
The cytotoxic effect of the alloy was tested with the Extraction Test.
(Project, 990880A, 01.01.2000, BSL Bioservice, DE-82152 Planegg, FRG)

Sensitization Test according to ISO 10993-10:
The allergic sensitization of the alloy was tested with the Maximation Test.
(Project 990881A, 01.01.2000, BSL Bioservice, DE-82152 Planegg, FRG)

Mutagenicity Test (AMES) according to ISO 10993-3:
There have been no AMES test.

Results:
The alloy showed no cytotoxic potential nor did it cause any allergic sensitization.

5. Handling

thermal treatements:	The alloy is suited for casting-on, brazing, laser and phaser welding. After these thermal treatments the alloy should be slowly cooled.
Surface-conditioning:	The alloy does not have to be pickled. It does not oxidize.

Remarks

Hardening:

Ceramicor hardens between 600°C and 700°C, but slowly. Because of this slow hardening the alloy is called partially selfhardened in dental technique applications.

After a 10 minute anneal at 600°C the alloy reaches a hardness of about 170 Vickaers, after 1 hour about 200 Vickers. After long time annealing at 600°C hardness values of up to 235 Vickers could be reached. The hardening graph in paragraph 7 refers to 6 hour annealing time.

Strain-hardening:

The strain-hardening curve in paragraph 7 started from the soft condition (1000°C/1h/air). The values given in paragraph 3 are higher because annealing was followed by an additional hardening process.

Recrystalization:

The recrystalisation curve in paragraph 7 shows, that the alloy is soft after quenching from 1000°C. However only a partial recrystalisation is obtained. The alloy still has two phases.

Brasing:

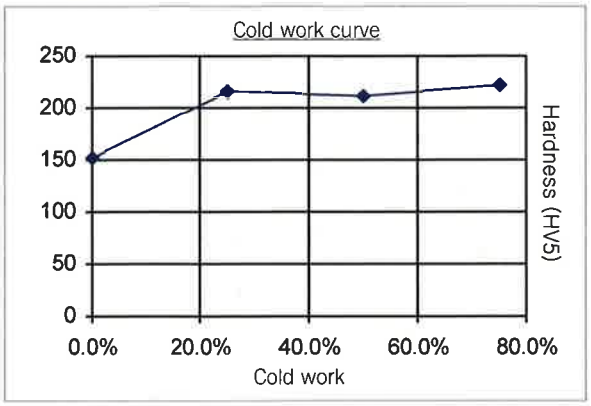
Ceramicor can be brazed with any prcious metal brazing material.

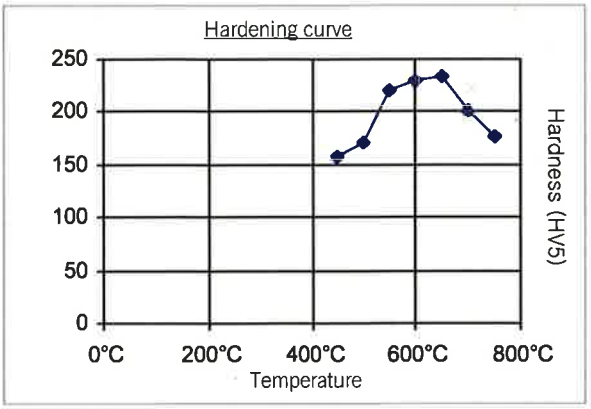
6. Certification

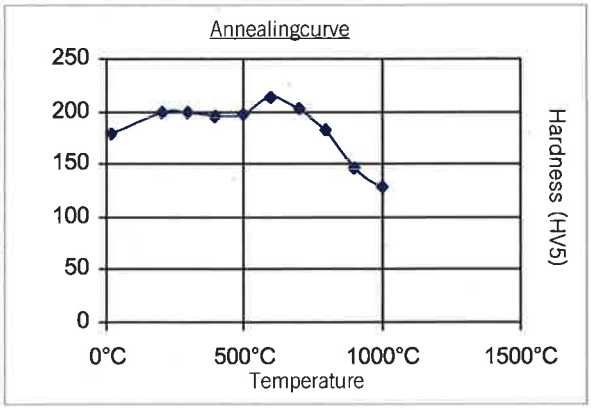
Corrosion testing according to standard ISO/DIS 10271 showed, that a total of 0.0$\mu g/cm^2 \times 7d$ was set free (limit: 200$\mu g/cm^2 x 7d$).

Manufacture, packing and delivery are constantly monitored according to the quality management system standards according to ISO 9001 and ISO 13485.

7. Graphs







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