# Material Data Sheet

# for: Esteticor® Special

This metal-ceramic alloy corresponds to the standards ISO 22674/Type 4 and ISO 9693.

## 1. Composition

| | |
|---|---|
| Au + Pt group-metals | 96.10% |
| Au | 77.30% |
| Pt | 9.80% |
| Pd | 8.90% |
| In | 1.50% |
| Ag | 1.20% |
| Sn | 0.50% |
| Cu | 0.30% |
| Re | 0.20% |
| Fe | 0.20% |
| Ir | 0.10% |

## 2. Physical Properties

| | |
|---|---|
| Melting range | 1160-1275°C |
| Density | 17.7 g/cm³ |
| Young's Modulus | 110 GPa |
| Linear Coeff. of thermal expansion (25-500°C) | $13.7 \times 10^{-6} \, K^{-1}$ |
| Linear Coeff. of thermal expansion (25-600°C) | $13.9 \times 10^{-6} \, K^{-1}$ |
| Colour | pale yellow |

## 3. Mechanical Properties

| | as cast | after firing | soft | hardened |
|---|---|---|---|---|
| Condition | | ISO 950°C | 900°C/30'/H2O | 900°C/30'/H2O & 600°C/15' |
| Hardness HV5 | 185 | 200 | 110 | 215 |
| Tensile strength (Rm) | 605 MPa | 635 MPa | 400 MPa | 630 MPa |
| 0.2% Proof stress (Rp 0.2%) | 455 MPa | 490 MPa | 185 MPa | 495 MPa |
| Elongation | 8 %. | 8 %. | 23 %. | 6 %. |
| Schwickerath crack initiation test | | 39 MPa | | |

## 4. Biological tests

### Cytotoxicity test according to ISO 10993-5:

The cytotoxic effect of the alloy was tested with the extract test.
(Project, 221703, 03.06.1991, CCR, DE-6101 Rossdorf, Germany)

### Sensitization test according to ISO 10993-10:

The allergic sensitization of the alloy was tested with the maximization test.
(Project 291734, 24.06.1991, RCC, Itingen/Basel, Switzerland)

### Mutagenicity test (AMES) according to ISO 10993-3:

The AMES test has not been realised.

### Results:

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

## 5. Certification

This metal-ceramic alloy corresponds to the standards ISO 22674/Type 4 and ISO 9693.

Corrosion testing according to standard DIN 13927 showed that a total of $0.4\mu g/cm^2 \times 7d$ was released (limit: $200\mu g/cm^2 \times 7d$).

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

**Cendres + Métaux SA**

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