Material Data Sheet  
(82) - OSV

The alloy corresponds to the standard ISO 22674/Type 4.

1. Composition
   Au (ISO 9202:1991) 60.00%
   Cu 14.00%
   Pt 10.50%
   Ag 7.00%
   Pd 6.50%
   Zn 2.00%

2. Physical Properties
   Melting range 960-1065°C
   Density 15.1 g/cm³
   Young's Modulus 110 GPa
   Linear Coeff. of thermal expansion (25-500°C) 16.5 x 10⁻⁶ K⁻¹
   Linear Coeff. of thermal expansion (25-600°C) 17.7 x 10⁻⁶ K⁻¹
   Colour white

3. Mechanical Properties
   Condition cold worked soft hardened
   Hardness HV5 35-50%KV >315 800°C/1h/H2O 800°C/1h/H2O&400°C/15/air 275 345
   Tensile strength (Rm) >930 MPa 805 MPa 1190 MPa
   0.2% Proof stress (Rp 0.2%) >850 MPa 740 MPa 1035 MPa
   Elongation >5 % 18 % 8 %

4. Biological Testing
   Cytotoxity Test according to ISO 10993-5:
   The cytotoxic effect of the alloy was tested with the Extraction Test.
   (Project, 990880F, 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 990881F, 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 polymerization, brazing, laser and phaser welding. OSV is self-hardening. Do not harden after brazing and welding, as the alloy may become brittle. The alloy has good mechanical properties even without hardening.

   Surface-conditioning:
   Pickling: 10 Vol.% warm sulfuric acid (H2SO4). Do not pickle in Neacid (sulphamic acid), nitric acid (HNO3) or hydrochloric acid (HCl).

   Remarks
   Hardening

   OSV hardens around 400-425°C.
   The hardening curve in paragraph was determined on material recrystalized at
800°C/1h/H2O with hardening times of 15 min. and air cooling.

Recrystallization

OSV is softest at 700°C and recrystallized at 800°C. At temperatures above 800°C slight grain growth occurs and hardness increases. The recrystallization curves in paragraph 7 is a mean curve of recrystallizations of material cold worked to 46%. Annealing times were 1 hour followed by quenching in water.

Cold work curve

The material strongly hardens at low rates of cold work. With cold work above 35% the mechanical properties remain constant, the hardness decreases slightly

6. Certification

Corrosion testing according to standard ISO/DIS 10271 showed, that a total of 0.88μg/cm²×7d was set free (limit: 200μg/cm²×7d).

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

7. Graphs

![Cold work curve](image1.png)

![Annealing curve](image2.png)

![Hardening curve](image3.png)

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