platinum labware

GOOD REASONS FOR

PTAU5 - XRS

A PRODUCT ALWAYS REFLECTS ITS MANUFACTURING

THE MANUFACTURING BENEFIT

IN OUR EVERYDAY EXPERIENCE WE RECOGNIZE THE SPECIAL QUALITY OF A PRODUCT AT A GLANCE, E.G. A KITCHEN UTENSIL MADE OF DAMAST STEEL.
However, it also happens that we realize the special characteristics of an object during daily use only and don´t want to continue without it. Our laboratory equipment made of XRS material is the perfect example.

The higher strength, even at long operating times and high temperatures, simplifies the handling and is increasesing precision. An ideal help to realize better results for your analyses every day.

XRF Scientific‘s PtAu5-XRS fine-grain stabilized material complements the already known platinum alloys available today to manufacture laboratory equipment such as crucibles and moulds.

Compared to the standard alloy PtAu5, this material is characterized by a much higher basic strength and a reduced grain growth rate.

This raises both the stability and the application temperature of the crucibles and moulds. Furthermore, the finer grain size also increases the corrosion resistance.

Conclusion:

At high application temperatures and for thin-walled platinum devices, PtAu5-XRS is an excellent material choice that ensures an extension of life time and improved dimensional stability.

If you have further questions regarding specific application areas, please contact us.

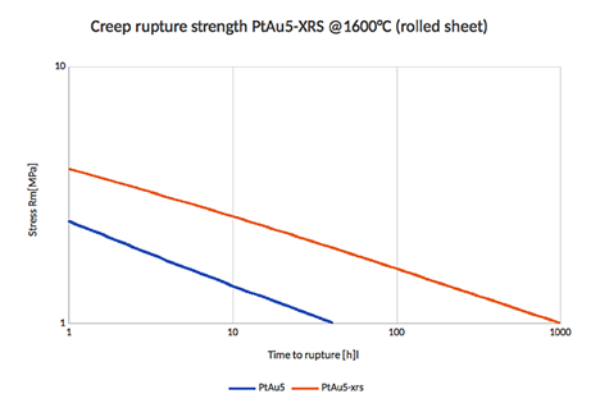


Figure 3: Time curve comparison PtAu5 and PtAu5-XRS at 1600°C

Optimized material

The improved properties of the dispersion-solidified alloys are achieved by small ceramic particles of ZrO2 being embedded in the metallic matrix of the PtAu5 alloy. These are evenly distributed in the structure and inhibit grain growth at high temperatures.

By adding these particles, the good property of the reduced wettability of the alloy is not affected in any way. The melt runs out completely of the crucibles and the fusion bead can be removed easily from the mould.

Characteristics of the alloy PtAu5-XRS*	
Melting point / melting interval	1675–1745°C
Density	21,32 g/cm³
Hardness Vickers (hard)	240 HV
Hardness Vickers (annealed)	120 HV
Maximum recommended application temperature	1450°C

** All specified measurements are average values that have been determined over several batches.*

Samples for many analytical methods such as X-ray fluorescence and atomic absorption are produced by merging sample material with borates. Special fusion beads for XRF analysis are melted in crucibles made of PtAu5 and poured into moulds made of PtAu5.

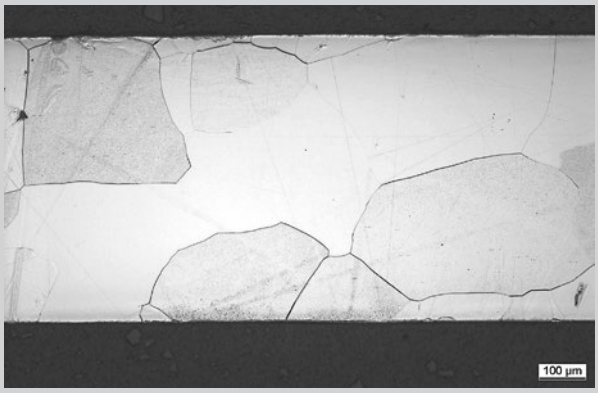


Figure 1: Structure PtAu5 after 10 h / 1000°C

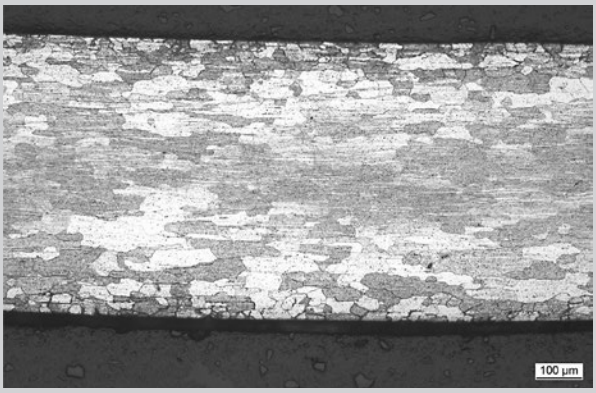


Figure 2: Structure PtAu5-XRS after 10h / 1000°C

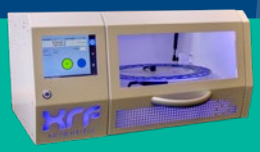
In order to compare the higher stability of the fine grain stabilized alloys, time stability is usually used as an indicator.

This determines the time after which a sample tears at a certain temperature and load.

flux and chemicals

fusion equipment

precision platinum



lab equipment

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