



Fixed Point Cells Sealed and Open

- Ultra Pure >99.9999% 6N
- 35 Year Plus History
- For Optimal Realisations

Isotech Ultra Pure-Metal Freezing Point Cells are designed specifically to realize the liquid-solid equilibrium temperatures of certain high-purity metal elements, for calibration of thermometers at the ITS-90 Fixed Points.

When you purchase an Isotech Sealed Freeze Cell you are not just purchasing a kilo of metal inside a graphite crucible sealed within a quartz shell, you are getting the fruits of more than 35 years of experience and learning of not only how to make such an artifact without introducing contamination but an Internationally accepted embodiment of an ITS-90 fixed point.

The Isotech cells have been further developed and refined from cells designed and manufactured by Henry Sostmann, with the first international inter comparison results being published in 1972.

In 2007 we combined 17 years experience of producing the best Metal Clad Slim Cells, with our experience of producing the most accurate Fixed Points sealed in quartz glass; to introduce Metal Clad Optimal Cells for the Primary Laboratory. These cells can be readily shipped between labs for intercomparisons, overcoming the difficulty of transporting Quartz Cells due to the increased airport security restrictions.

Isotech's accredited laboratory has the smallest uncertainties and can issue UKAS certificates with uncertainties as low as ± 0.07 mK at 0.01°C to ± 2 mK at 961.78°C, k=2.

Uncertainties

Optimal Cells include a conformity certificate which includes a copy of the impurities analysis, a copy of the metal of the cell evaluation freeze and melt curves. Where required we can also provide UKAS calibration.

The uncertainty mentioned in the table is that which can be offered with our optional UKAS Calibration service. Our Premium Calibration service involves realizing three melt plateau, three freeze plateau and two intercomparisons to



a reference cell. This takes a minimum of 15 days of laboratory time.

on Service Note 5

With our Standard Comparison service we perform one melt, one freeze and one intercomparison, the time to calibrate is less than the Premium Service and so the cost is lower. The uncertainties are still small, and suitable for all but the most demanding of Primary Laboratories.

Isotech UKAS Calibration Uncertainties (k=2)

Cell	Premium Calibration Service UKAS Schedule Note 4	Standard Calibratio UKAS Schedule
Mercury	+/-0.22mK	+/-1mK
Gallium	+/-0.07mK	+/-1mK
Indium	+/-0.65mK	+/-2mK
Tin	+/-0.60mK	+/-2mK
Zinc	+/-0.90mK	+/-2mK
Aluminium	+/-1.1mK	+/-6mK
Silver	+/-2mK	+/-30mK

I he latest schedule can be found on the Isotech website or at www.ukas.org.





Available Types Sealed Cells **Open Cells** Metal Clad **Quartz Clad Metal Clad Quartz Clad** Cells Uncertainty 17668MO 176868QCO 156.5985°C 17668 17668MCO 231.928°C +/-0.60mk 17669MO 17669 17669MCO 17669QCO 17671QCO Zinc 419.527°C +/-0.90mk 17671MO 17671 17671MCO Aluminium 660.323°C 17672MO 17672MCO 17672QCO 961.78°C +/-2mk 17673 17673QCO Silver 1084.62°C 17674QCO Copper 17674

Isotech cells are of the highest purity available. Open cells conform to CCT/2000-13. Sealed cells are sealed to one atmosphere with 6N pure argon at the freeze temperature.

Sealed Metal Sealed Quartz **Resealable Metal Open Quartz** Convenience Convenience ■ Pressure can be set ■ Pressure can be set by user by user Protected Against Protected Against Contamination and ■ Requires vacuum and ■ Requires vacuum and Ambient Pressure Ambient Pressure gas flow system gas flow system Effects ■ Easily Transportable Transportable Easily Transportable Between Labs Between Labs Between Labs Robust Can be disassembled Robust ■ Thermally Closer to ITS-90 temperature Sealed Construction with open port for gas supply

Cell baskets, complete with appropriate heat shunts and reflectors are available seperately. A carry case is included with Sealed Cells.

Nominal Dimensions Outside Dia. Outside Dia. Outside Dia. Outside Dia. 50mm 50mm 50mm 50mm Inside Dia. Inside Dia. Inside Dia. Inside Dia. Height* In, Sn, Zn - 520mm Al, Ag, Cu - 610mm Height* 270mm Height* Height* 275mm (+350mm Tube) Metal Depth 200mm Metal Depth 200mm Metal Depth 200mm Metal Depth 200mm

^{*}The height is measured from the bottom of the flange wherever necessary, excludes sealing tip.