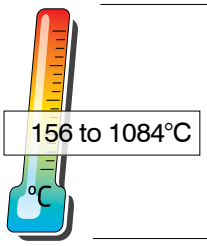


Fixed Point Cells
Sealed and Open

- 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 ±0.07mK at 0.01°C to ±2mK 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.

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 Calibration Service UKAS Schedule Note 5
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	+/-15mK

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

UKAS CALIBRATION
0175

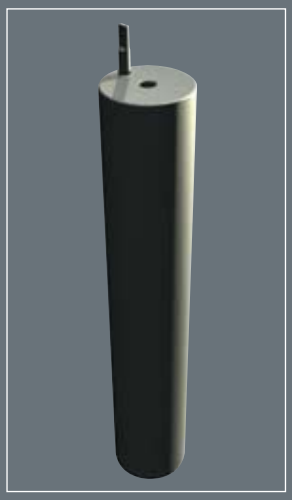
Available Types

Cells		Uncertainty	Sealed Cells		Open Cells	
			Metal Clad	Quartz Clad	Metal Clad	Quartz Clad
Indium	156.5985°C	+/-0.65mk	17668MO	17668	17668MCO	17668QCO
Tin	231.928°C	+/-0.60mk	17669MO	17669	17669MCO	17669QCO
Zinc	419.527°C	+/-0.90mk	17671MO	17671	17671MCO	17671QCO
Aluminium	660.323°C	+/-1.1mk	17672MO	17672	17672MCO	17672QCO
Silver	961.78°C	+/-2mk	N/A	17673	N/A	17673QCO
Copper	1084.62°C		N/A	17674	N/A	17674QCO

Other points such as Lead and Antimony available. Please ask for details.

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



- Convenience
- Protected Against Contamination and Ambient Pressure Effects
- Easily Transportable Between Labs
- Robust

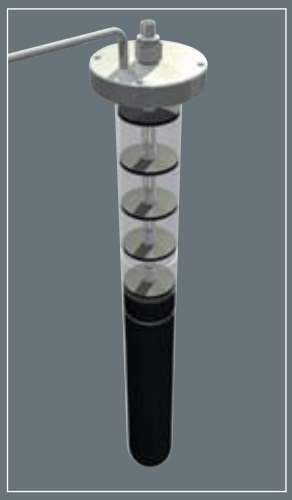
Sealed Quartz

- Convenience
- Protected Against Contamination and Ambient Pressure Effects

Resealable Metal

- Pressure can be set by user
- Requires vacuum and gas flow system
- Easily Transportable Between Labs
- Robust
- Thermally Closer to ITS-90 temperature
- Sealed Construction with open port for gas supply

Open Quartz



- Pressure can be set by user
- Requires vacuum and gas flow system
- Transportable Between Labs
- Can be disassembled

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

Nominal Dimensions

Sealed Metal		Sealed Quartz		Resealable Metal		Open Quartz	
Outside Dia.	50mm	Outside Dia.	50mm	Outside Dia.	50mm	Outside Dia.	50mm
Inside Dia.	8mm	Inside Dia.	8mm	Inside Dia.	8mm	Inside Dia.	8mm
Height*	270mm	Height*	275mm	Height*	270mm (+350mm Tube)	Height*	In, Sn, Zn - 460 or 520mm Al - 480, 520 or 620mm Ag, Cu - 520 or 620mm
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.*