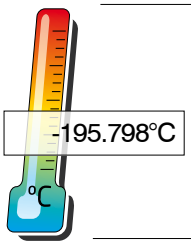

Simple Liquid N_2 Apparatus
Model 461

- Safe to use
- Economical

This model is a lower cost alternative to the ITL M 18205. This model is a simple apparatus open to the atmosphere comprising a stainless steel dewar flask filled with liquid Nitrogen, an insulating layer which houses a metallic equalising block and thermometer holder. Lastly a split insulated lid reduces evaporation and permits easy addition of liquid Nitrogen.

From time to time extra liquid Nitrogen must be added, approximately every 30 minutes, to keep the dewar flask full.

The dewar flask is 100mm inside diameter and 280mm deep. The standard equalizing block houses four SPRTs or industrial thermometers up to 8mm in diameter, giving ±0.002°C temperature uniformity.

Method of Operation

A standard calibrated SPRT is placed in the equalizing block together with the sensors to be calibrated. The whole is allowed equilibriate.

The level is checked and Nitrogen added as necessary and readings taken 10 minutes afterwards.

The Isotech Simple Liquid Nitrogen Apparatus is safe to use, having no glass dewar flask internally to explode.

A comprehensive handbook accompanies the apparatus which includes an article by Henry E. Sostmann on the corrections required to convert the calibration to the ITS-90 value of the Argon Triple Point.

Technical Note:

The Simple Liquid Nitrogen Apparatus, because there is air access will slowly condense oxygen from the atmosphere increasing the temperature of the Boiling Point.

This is of small importance provided a calibrated SPRT is being used as the reference and simultaneous ratios of SPRT and unknown thermometers are being recorded, with a bridge such as the Isotech microK.

Liquid Nitrogen is not supplied with the apparatus.

Model	461 Simple Liquid Nitrogen Apparatus
Temperature Range	-196°C Nominal
Uncertainty	±0.002°C The temperature distribution across the block is typically 2mK. To this must be added the uncertainty issued with the calibration certificate from the National Laboratory. Extra uncertainties will also exist if dissimilar probes are compared.
Power	NA
Dewar Dimensions	Inside diameter 100mm Depth 280mm Volume 3 litres
Thermometer wells	Four 8mm as standard, others to special orders

How to order
461 Simple Liquid N2 Apparatus