

A GUIDE TO LIQUID NITROGEN HOLDING TIMES

The following information is intended as a guide only and should not therefore be taken or given as a guarantee to customers. This is to illustrate the probable time it takes for a Dewar with lid to empty completely after being filled with Liquid Nitrogen (LN₂).

This time may alter according to higher or lower ambient temperatures ; whether or not the lid is removed once or repeatedly for examination of the contents ; whether or not the contents are actually removed for examination ; and according to the mass of the material being frozen.

These times therefore refer to the Dewars with Stainless Steel and Enamelled Steel containers with handles and lids.

<u>CAPACITY.</u>	<u>HOLDING TIMES</u>
1 Litre	38 Hours
2 Litres	48 Hours
4.5 Litres	54 Hours
7 Litres	70 Hours
10 Litres	90 Hours

Even though Dewars may be almost empty of Liquid Nitrogen, they will continue to be very effective as storage vessels for frozen material, as the material would be held in what is known as the 'vapour phase' of the Liquid Nitrogen, i.e. the LN₂ will have boiled off to become a very low temperature gas. Typically, the vapour phase can be at as low a temperature as -160°C to -140°C. This will be of interest to users who wish materials held in a frozen state but not necessarily at the exceptionally low temperature of the Liquid Nitrogen itself.

Dry-Ice (solid CO₂) is also frequently used in Dewars. This exists at the relatively warm temperature of around -90°C. Our tests suggest that holding times for CO₂ are about 25% longer than those listed above for LN₂.

If a customer is using an all-stainless steel Dewar (no glass) they will probably find a drop in efficiency of some 30%.