SMB Shipping Dewar Worksheet

Please use this worksheet in conjunction with the more detailed directions found online.

Circle one: Taylor Wharton CX100 MVE SC 4/2 V

Analyzing if the Dewar is Dry

What is the empty weight of the dewar? _____

Is the "as new" weight of the dewar known? Yes No

If yes, what is the "as new" weight? _____

If no, thoroughly dry the dewar and record the empty weight above as the "as new" weight.

Is the empty weight within 0.45 kg or 1 lb of the "as new" weight? Yes No

If yes, proceed with the following tests.

If no, thoroughly dry the dewar until it is within 1 lb of the "as new" weight.

Inspect for Catastrophic Vacuum Failure

Is catastrophic vacuum failure evident? Yes No

If yes, do **not** ship samples in this dewar.

If no, proceed with the following tests.

Measure Liquid Nitrogen Loss Levels

What is the initial height of liquid nitrogen in the dewar? _____

After at least 24 hours, what is the height of liquid nitrogen in the dewar? _____

Between the first and second measurements, how much time elapses (in hours)? _____

Evaluate the following formula: $$Loss\ Rate = \frac{Second\ Height - Initial\ Height}{Time}$$

Is the Loss Rate larger than -6.25 mm/hr? Yes No

If yes, proceed with the following test.

If no, do **not** ship samples in this dewar.

Analyzing the Amount of Liquid Nitrogen in the Dewar and Dewar Working Time

What is the empty weight of the dewar? _____ (a)

What is the charged weight of the dewar? _____ (b)

What is the difference between the charged weight (b) and the empty weight (a)? _____ (c)

For the Taylor Wharton CX 100, the manufacturer's ideal working time (MIWT) is 21 days and the ideal amount of liquid nitrogen retained (IALNR) is 3.6 kg. For the MVE SC 4/2 V, the MIWT and IALNR are 14 days and 3.1 kg respectively.

Evaluate the following formula: $$your\ dewar\ working\ time = \frac{MIWT * C}{IALNR}$$

Is your dewar working time greater than 10 days? Yes No

If yes, the dewar is acceptable for shipment.

If no, try drying your dewar or examining whether the absorbent material is functional. If it seems adequate, please use your best judgement in deeming whether the dewar is acceptable for shipment.