

## Lyophilization (Freeze-drying) – Dry Matter

### Materials:

Lyophilizer (freeze-dryer)  
Aluminum pans or weigh boats  
Top loading balance (weighs to 0.1 g)

### Procedure:

1. Label and weigh pans or weigh boats on top loading balance to the nearest 0.1 g.
2. Prepare samples to allow the greatest amount of surface area when frozen (chop or spread thin).
3. Find a technician to help with freeze dryer operation and sample preparation.
4. Weigh dried samples on top loading balance. To ensure complete dryness, dry to constant weight.
5. If working with meats or tissue, place dry sample into sealed bag in freezer for storage.

### Calculations:

Sample	A Empty Pan	B Wet Sample + Pan	C Dry Sample + Pan	D DM %
#100	13.3	33.1	31.4	91.4

$$D = \left[ \frac{C - A}{B - A} \right] \times 100$$

$$91.4 = \left[ \frac{31.4 - 13.3}{33.1 - 13.3} \right] \times 100$$