

# IAFMM

# FISH OIL BULLETIN

international association of fish meal manufacturers

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## RECOMMENDED METHOD OF ANALYSIS FOR DETERMINATION OF SPECIFIC GRAVITY OF FISH OIL

### 1. Principle

This method determines the ratio of the weight of a unit volume of the sample at 25°C to the weight of a unit volume of water at 25°C.

### 2. Apparatus

Specific gravity bottles with well fitting ground glass joints, about 50 ml capacity. Calibrate each bottle as follows: Clean and dry thoroughly and then fill with recently boiled and cooled distilled water at 20°C to 23°C. Fill the bottle to overflowing by holding the bottle on its side in such a manner as to prevent the entrapment of air bubbles. Insert the stopper and immerse in water bath at  $25^{\circ} \pm 0.2^{\circ}\text{C}$ . Keep the entire bulb completely covered with water and hold at specified temperature for 30 min.

Carefully remove any water which has exuded from the side opening. Remove the bottle from the bath and wipe completely dry. Weigh the bottle and contents. Calculate the weight of water in the flask by subtracting the weight of empty bottle from the weight of bottle plus water.

Water bath maintained at  $25^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ .

Thermometer, any convenient thermometer of suitable range with  $0.1^{\circ}$  or  $0.2^{\circ}\text{C}$  subdivisions. Standardize carefully, preferably by comparison with a thermometer calibrated by a National Standards Organization.

### 3. Method

Melt the sample, if necessary, and filter through filter paper to remove any impurities and the last traces of moisture. The sample must be completely dry.

Cool the sample to  $20^{\circ}$  to  $23^{\circ}\text{C}$  and fill the bottle to overflowing, holding the bottle on its side in such a manner as to prevent the entrapment of air bubbles. Insert the stopper, immerse, and hold in the water bath at  $25^{\circ} \pm 0.2^{\circ}\text{C}$  for 30 minutes. Carefully wipe off any oil which has come through the capillary opening and remove from the bath. Clean and dry thoroughly.

Weigh the bottle and contents, and calculate the specific gravity as directed.

### 4. Calculations

$$\text{S.G.} = \frac{\text{Weight of bottle and oil} - \text{weight of bottle}}{\text{Weight of water at } 25^{\circ}\text{C}}$$

### NOTES

1. Unless the specific gravity bottles are protected with caps, care must be taken so that no oil or water is lost in the interval between removal from the bath and weighing. If the temperature of the room is above  $25^{\circ}\text{C}$ , this is very apt to happen. Even the warmth of the hand surrounding the bottle is sufficient to cause expansion of the contents of the flask.
2. Unless the specific gravity bottles are made of glass with a very low co-efficient of expansion, a correction must be made for the expansion of the glass. The co-efficient of expansion of ordinary glass is ca 0.000025.