

7.9 Estimation of ether extracts using Soxtec system

Introduction

The Soxtec system has been developed to make solvent extraction faster, safe and more rational. The design of the Soxtec system (Fig. 7.8) makes it possible to extract crude fat from feeds in typically 45 minutes, to process 6 samples simultaneously and to use only 20 ml of solvent per extraction. The heating system with no electricity close to the extraction unit has minimized possible explosion risks.

Equipment

- Analytical balance
- Soxtec system
- Thimbles 26 x 60 mm
- Heating oven
- Desiccator

Chemicals

- Appropriate solvent e.g. diethyl ether, petroleum ether, hexane.
- Cotton wool (defatted)
- Boiling chips (glass ball –4-5 mm)



Fig. 7.8 Soxtec apparatus

Soxtec HT procedure

- Grind the samples thoroughly.
- Load each thimble with about 3 g (W_1) of the well mixed sample and cover with a thin layer of cotton wool.
- Dry the thimbles.
- Insert the thimbles into the Soxtec HT.
- Dry and pre-weigh (W_2) the extraction cups (with boiling chips). Add 25-50 mls of the solvent into each cup.
- Insert the cups in to the Soxtec HT.
- Extract for 15 minutes in “Boiling” position and for 30-45 minutes in “Rinsing” position.
- Evaporate the solvent.
- Release the cups and dry at 100°C for 30 minutes.
- Cool the cups in a desiccator and weigh (W_3). Calculate percentage fat/oil according to the formula.
- Fat extraction can also be done by using Soxtherm system (Fig. 7.9).



Fig. 7.9 Fat extraction by Soxtherm

$$\% \text{ Fat / oil} = \frac{(W_3 - W_2)}{W_1} \times 100$$

Reference: Tecator – Application note No. 983.06.13
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