

AN number: LA1003  
Date: 2015-01-19  
Revision: 1.0

## Extraction of Palm Oil residues in Press Fibre using Hexane

*As the extraction might involve the use of hazardous and hot solvent it is strongly recommended to use protective glasses and gloves. The SoxROC Operation Manual chapter 3 Safety should be read before starting any work.*

### INTRODUCTION

The determination of fat and moisture in food and feed samples is a routine procedure in quality assurance and labeling. A simple and fast procedure for extraction of Palm Oil residues in Press Fibre using SoxROC Extraction Unit is introduced below. The total fat content is determined gravimetrically after the extract is dried to a constant weight. The rather high sample size given below is used if moisture determination is done in combination with the extraction. If the purpose is to carry out fat extraction only, the sample size might be reduced.

### EXPERIMENTAL

#### Apparatus

- Mixer and scissors
- Analytical balance
- SoxROC Extraction Unit SX-360-A or SX-320-A
- Extraction cups Ø 54 mm, aluminum or glass, compatible with the solvent extraction system
- Drying oven
- Desiccator
- Paper thimbles (33x80 mm)

#### Reagents and accessories

- Hexane
- Boiling stones
- Cotton wool

#### Procedure

Moisture test is done according the procedure normally used (in oven or micro oven). Afterwards transfer all sample used into the thimble. Place cotton on top of the sample and press it down into the center. Carry out the extraction with SoxROC Extraction Unit using the parameters shown in Table 1. Dry the

extracts to constant weight in an oven at 100°C and let cool to room temperature in desiccator. Calculate the total fat content.

Table 1. Extraction parameters (SoxROC Extraction Unit)

Sample weight	≈10 g
Solvent	Hexane
Solvent volume	135 ml
Temperature (glass/aluminum)	170°C/110°C
Boiling /number of reduces	20 min / 7
Rinsing / number of reduces	40 min / 5
Drying	5 min

*Note: The solvent volume is correlated to the sample volume/height. During BOILING the sample should be completely immersed in solvent.*

## CALCULATIONS

Calculate the fat using the formula below.

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

- W<sub>1</sub> = Sample weight (g)  
W<sub>2</sub> = Extraction cup weight (g)  
W<sub>3</sub> = Extraction cup + residue weight (g)

## RESULTS

It should be possible to achieve results with a relative standard deviation of 1-2%. The results very much depends on the sample preparation, the procedure and the type of sample.

## REFERENCES

This Application Note should be used in conjunction with Application Note LA1002 "Application Guide SoxROC Solvent Extraction"

OG1012 SoxROC Operation Guide