

# Total fat in bakery products with E-800 HE

*UniversalExtractor E-800 HE: Total fat determination in bakery products*

## 1. Introduction

The total fat contents of a bakery product and a chocolate sample were determined with the UniversalExtractor E-800 HE. The samples were homogenized, hydrolyzed and extracted with a hot extraction method using different solvents.

## 2. Experimental

Equipment: HydrolEx H-506, UniversalExtractor E-800 HE

Samples: Shortbread, LVU No. 22-11 with a certified fat content of 14.049 g/100g (+/- 0.286 g/100g); Chocolate, purchased at a local supermarket, labelled fat content 33g/100g.

Determination: The samples were hydrolyzed with 100 mL of 4 M hydrochloric acid using the HydrolEx H-506 for 30 min. The hydrolyzate was transferred and washed with deionized water, until a neutral pH was obtained. The glass sample tubes were dried in a vacuum oven, drying oven or microwave oven. After cooling down in a desiccator, the glass sample tubes were placed into the beakers of UniversalExtractor E-800 HE. The hot extractions were carried out with the UniversalExtractor E-800 HE using the parameters specified in Table 1.

Table 1: Hot Extraction with UniversalExtractor E-800 HE

Step	Value
Extraction method	Hot extraction
Solvent	Petroleum ether or Hexane
Extraction step	10 min (heating level 5-7*)
Rinse step	30 min (heating level 5-7*)
Number of drains	3
Dry step	3 min (heating level 3-5*)
Solvent volume	50 mL

\*Depending on the solvent.

## 3. Results

Table 2 shows the results of the total fat determinations of a bakery product and a chocolate sample using different solvents.

Table 2: Results of total fat determination using UniversalExtractor E-800 HE with different solvents (n =3).

Sample	Petroleum ether [%] (rsd in %)	Hexane [%] (rsd in %)
Shortbread	13.99 (0.19)	13.98 (0.59)
Chocolate	33.40 (0.12)	33.44 (0.22)

## 4. Conclusion

The determination of fat in a bakery product and a chocolate using the HydrolEx H-506 and the UniversalExtractor E-800 HE provides reliable and reproducible results. These results correspond well to the labelled values, with low relative standard deviations (rsd).

## 5. References

- [1] ISO 11085:2016 Cereals, cereals-based products and animal feeding stuffs -- Determination of crude fat and total fat content by the Randall extraction method
- [2] AOAC 2003.05 Crude Fat in Feeds, Cereal Grains, and Forages

For more information, please refer to Application Note 844/2024.

