ELTRA
ELEMENTAL ANALYZERS

Moisture and ash determination in biscuits

Resistance furnace

Integrated balance

Suitable analyzers

- TGA Thermostep

Used accessories

- Ceramic crucible (26063)
- Spatula (23111)
- Quartz sand (90840)

Settings	Step Moisture ---------->	Step Ash
Temperature:	105 °C	600 °C
Speed:	0 °C (= automatic)	0 °C (= automatic)
Type:	Stop by deviation	Stop by deviation
Time:	0 sec	0 sec
Deviation:	0.001	0.001
Gas:	Nitrogen	Oxygen

Formulas

- Dry mass: **100 - ((X[0] - (X[1] - Y[1])) / X[0]*100)**
- Ash (as analyzed): **(X[2] - Y[2]) / X[0]*100**
- Ash (dry base): **(X[2] - Y[2]) / X[1]*100**

Procedure

- Prepare and clean the ELTRA analyzer (e.g. remove ash from the crucibles)
- Check pressure of the oxygen and nitrogen bottle
- Prepare the application according to the recommended settings
- Select this application in the TGA software; log in the sample names and fill approximately 1-2 g of quartz sand (90840) into the crucibles before the weight is taken by the internal balance
- Set the option "Balance Button" to "Yes"
- When the current crucible is placed on the pedestal fill in approximately 1 g of sample
- Remove the crucible carefully from the TGA carousel and mix the quartz with the sample (e.g. with a quartz tube or a small spatula)
- Put the crucible back on the carousel and confirm the weight by pressing the balance button.

-> Proceed like this for all samples.

Typical results (1 g Sample weight)

Biscuits		
Weight (g)	**Dry mass (%)**	**Ash dry (%)**
1.15	98.84	0.92
1.07	98.84	0.93
1.08	98.81	0.96
1.06	98.77	0.89
1.12	98.96	0.97
1.15	98.86	0.92
1.20	98.88	0.88
1.11	98.95	0.91
1.14	99.05	0.90
1.06	99.02	0.92
Average values		
	98.9	0.92
Deviation		
	0.09 / 0.09 %	0.03 / 3.1 %

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