Application Short Note DUMATHERM
Nitrogen in Chorizo Sausage

Gerhardt Analytical Systems

Applied method (e.g. AOAC, DIN, EN, ISO, EPA, ASTM, §64, company sop, etc.)

AOAC 992.15, Crude Protein in Meat and Meat Products including Pet Foods, Combustion Method, 1992

Instruments

1	Analytical Balance (readability 0,1 mg or better)
2	Homogenizer, e.g. Grindomix GM200 Knife Mill or TEFAL Moulinette
3	DUMATHERM N Pro, standard configuration

Gases and Consumables

1	Helium and Oxygen, bottle gas, min. quality grade 5.0	
2	Nitrogen or compressed air as bottle gas, min. quality grade 2.6.	
3	DumaReact, Combustion Reactor, packed with catalyst,	14-0245
4	DumaTube, Quartz glass for reactor,	14-0203
5	DumaFoil, Tin Foil for packing the samples,	14-0017
6	DumaSorb, Absorbent for liquid samples, 25g, 14-0022, alternatively DumaSorbeco, Absorbent for liquid samples, 50g,	14-0295
7	DumaEDTA, Standard for Calibration, purity > 99 %,	14-0032

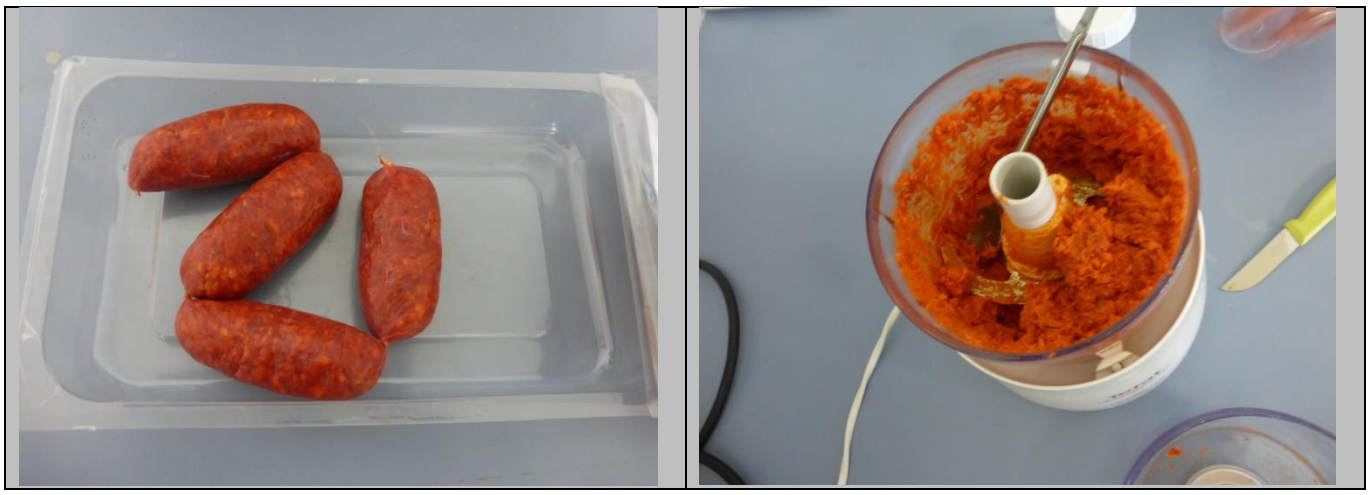
Method Settings

Sample Weight	300 mg
Packing of the sample	Tin foil
Combustion Method	C 1,6 (200 ml O_2 / min, 1.6 ml O_2 / mg sample
Protein Factor	6,25
Combustion Temperature	1030 °C
Reduction temperature [°C]	750
Recommended Calibration Range	1 – 15 mg N absolute (measured with 10-150 mg EDTA)

Homogenization / Preparation

The sample is taken from the fridge and directly homogenized with a regular kitchen grinder (type Moulinette). The mashed material is thoroughly mixed again with a spatula and taken with a spatula for weighing into the tin foil.

The material should be max. at room temperature (≤ 20 °C) during the weighing procedure.



Example Results

Dumatherm Nitrogen / Protein Analyser

Serial Number : 859
Software Version: DUMATHERM MANAGER V6.17d
Submitter :
Operator : Serviceman

Date	Time	Sample name	Weight [mg]	Moisture [%]	Protein factor	Nitrogen Peak Area [mV*s]	N Weight [mg]	Nitrogen [%]	Protein [%]
13.07.2017	10:12:36	6085 Chorizo	297,750		6,25	3,573E+04	9,203	3,091	19,32
13.07.2017	10:18:45	6085 Chorizo	339,743		6,25	3,959E+04	10,197	3,002	18,76
13.07.2017	10:25:10	6085 Chorizo	378,647		6,25	4,489E+04	11,561	3,053	19,08
13.07.2017	10:31:28	6085 Chorizo	357,401		6,25	4,198E+04	10,813	3,025	18,91
13.07.2017	10:37:32	6085 Chorizo	327,709		6,25	3,845E+04	9,903	3,022	18,89

Average	3,039	18,99
Standard Deviation	0,035	0,22
RSD [%]	1,138	1,14

Calibration number and standard name : for N EDTA (L-Q-Q) EDTA
Method : C 1,6
Series Name :

Temperatures:

Combustion Reactor	979 °C
Reduction Reactor	800 °C
Degassing Oven	299 °C

Flow Rates:

He I	194,0 sccm
He II	200,0 sccm
O_2	200,0 sccm

Times:

Sample Delay	9 s
Sample Stop	13 s
Run Time	Auto

AOAC 992.15 allows for meat and meat products in combustion analysis standard deviations of s_r <= 0,41 for % Protein.
The received results are within this range. No further sample homogenization or increase of weight is necessary.

Remarks

It is important to take a representative sample weight of the well homogenized sample material.