

Instrument: FP528

Nitrogen/Protein in Dairy Products

LECO Corporation; Saint Joseph, Michigan USA

Accessories

502-186 Tin Foil Cups, 501-614 Spatula, disposable eyedroppers

Sample Weight

0.15 to 0.25 g

Calibration Standard

502-092 EDTA, 502-211 Glycine, or other suitable standard

Furnace Temperature

950°C

Flow Profile

All High

Atmospheric Blank (N)

~0.04 (solids)

Protein Factor

6.38*

**Protein factor was obtained from the United States Department of Agriculture, Circular No. 183. The choice of protein factor to be used for determining protein content in different materials is the subject of some debate. As a result, if being used for commerce, the value of this conversion factor should be part of the contractual agreement between buyer and seller.*

Crucible Changing Interval

200 to 300 analyses

Procedure

1. Prepare the instrument by following the procedure as outlined in the operator's instruction manual (i.e. check gas supplies, perform any required maintenance, perform leak checks, etc.).
2. Analyze blanks (gas) until a plateau is reached. Analyze three to five additional blanks and set blank using these data.
3. Analyze five EDTA standards (using the 502-186 Tin Foil Cups) at 0.2 g and drift correct (if using the PC option). *NOTE: Each method on PC requires prior calibration with multiple weights of EDTA (0.035 to 0.4 g). If PC is not installed, analyze five EDTA standards and calibrate using the DSP screen menu.*
4. After mixing the sample well, weigh ~0.25 g dairy product into a 502-186 Tin Foil Cup. Seal the foil cup and analyze.
5. Analyze a standard at end of set to verify calibration.

Typical Results

Sample	Weight (g)	% Nitrogen	% Protein
Whey Protein	0.1761	14.81	94.47
Isolate	0.1514	14.81	94.48
Powder	0.1702	14.78	94.32
Average	=	14.80	94.42
Std. Dev.	=	0.017	0.09

Whey Protein	0.2953	5.51	35.16
Concentrate	0.2253	5.51	35.17
Powder	0.2604	5.52	35.20
Average	=	5.51	35.18
Std. Dev.	=	0.006	0.02

Sample	Weight (g)	% Nitrogen	% Protein
Cheddar Cheese	0.2350	3.93	25.06
	0.2675	3.99	25.44
	0.2819	3.97	25.31
	0.2983	3.99	25.47
Average	=	3.97	25.32
Std. Dev.	=	0.024	0.16
Whole Milk	0.2059	4.23	26.98
Powder	0.2013	4.22	26.92
NIST SRM 8435	0.2894	4.23	26.96
4.182 %N	0.2204	4.21	26.86
(dry basis) ±0.053	0.2375	4.22	26.92
Average	=	4.22	26.93
Std. Dev.	=	0.008	0.05



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