CALIBRATION MODELS

InfraLUM FT-12 NIR analyzer

Lumex Instruments offers express analysis of nutritional values and safety parameters in the following food and agricultural products:

- grains, cereals, flour, and processing products;
- legumes/pulses;
- oilseeds and processing products, fats and oils;
- feed, mixed fodders, and feed raw materials;
- milk and dairy products;
- meat and meat products;
- fish and fish products;
- bakery products;
- sauces;
- wine.

If you cannot find products or parameters of your interest in our list please contact us for more details.
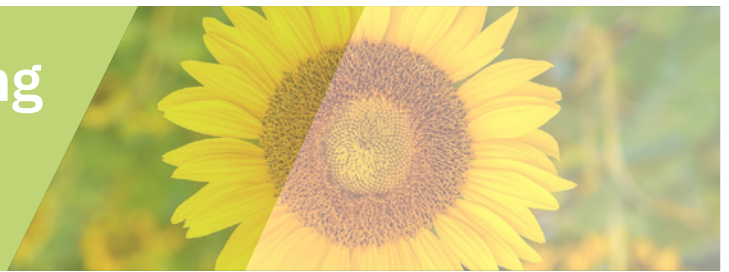
Grains, cereals, flour & processing products

Product	Parameters	Measurement range, %
Wheat	protein	9–18
	moisture	9–18
	gluten	15–35
	glassiness	35–60
	fat (oil)	1–4
	fiber	1–4
	starch	57–64
	phosphorus	0.29–0.35
	amino acids	*
Wheat flour	protein	10.5–17
	moisture	10–16
	gluten	19–35
	whiteness	10–65 units
	ash	0.35–2.1
Wheat bran	protein	10–20
	moisture	5–18
	ash	4–18
	fiber	6–23
Wheat oil meal	ash	1.4–2
	moisture	10–18
Corn/maize	protein	7–17
	moisture	8–25
	fat (oil)	2–14
	starch	30–73
	fiber	1–4
	amino acids	*
Corn flour	moisture	10–14
	starch	65–76
Corn gluten	protein	53–64
	moisture	4–12
	fat (oil)	0.4–9.5
	fiber	0.2–4.6
	ash	1.5–6.2
	amino acids	*

Product	Parameters	Measurement range, %
Corn germ	protein	7–14
	moisture	6–11
	fat (oil)	20–54
Corn oil cake	protein	17–22.5
	moisture	6–11
	fat (oil)	7.5–18
Barley	protein	7–16
	moisture	7–17
	fiber	3–17
	starch (fermentable sugars / carbohydrates)	48–58
	fat (oil)	1–3
Barley malt	protein	9–12
	moisture	4–13
Oats	protein	8–16
	moisture	8–17
	fiber	2–12
	fat (oil)	3.5–8
	ash	1.9–3.6
Rice	protein	6–11
	moisture	12–28
	amylose	13–29
Rye	protein	11.9–19
	moisture	8–17
	fiber	0.5–2
	ash	1.8–3.3
	starch	52–62
Rye flour	moisture	10–17
	ash	0.6–2
Triticale	protein	7–18
	moisture	5–18
	fiber	1.5–5
	starch	56–62

*The following amino acids are determined in the entire content range:
lysine, methionine, alanine, arginine, valine, histidine, glycine, isoleucine, leucine, proline, serine, threonine, tyrosine, phenylalanine.

Oilseeds, oils & processing products

Product	Parameters	Measurement range, %
Soya beans	protein	28–48
	nitrogen	4.4–6.2
	moisture	8–17
	oil content	16–23
	fiber	5–11
Full-fat soybean meal	protein	30.5–35
	moisture	7.8–10.2
	oil content	17.5–21
	fiber	5–14
	ash	4–7
	urease activity	0.03–2.2
	amino acids	*
Soybean flour	protein	30–40
	moisture	5.5–7.6
	oil content	16–26
Soybean oil cake	protein	37–43.5
	moisture	4–7
	oil content	7.9–12
	fiber	2–9
	amino acids	*
Soybean oil meal	protein	40–52
	digestible protein	85–95
	protein (according to Barnstein method)	40–62
	nitrogen	6.4–8.3
	moisture	4.2–13.8
	oil content	0.5–7.5
	fiber	2–10.5
	amino acids	*
Rapeseed	oil content	38–50
	moisture	5–24
	protein	18–26
	glucosinolates	11–64 mmol/kg
	erucic acid	0–5.3

Product	Parameters	Measurement range, %
Rapeseed oil cake	protein	16–22
	moisture	3–7
	oil content	2–5.5
	fiber	8–18
Rapeseed oil meal	protein	35–52
	moisture	8–12
	oil content	2–5.5
	fiber	7.5–18
Sunflower seeds	oil content	32–55
	moisture	4.5–7.5
	protein	13–24
	oleic acid	40–90 (% of total fatty acids)
Sunflower oil cake	protein	20–42
	moisture	3–9
	oil content	6–23
	fiber	12–23
	ash	5.8–9.4
Sunflower oil meal	protein	30–52
	moisture	4–12
	oil content	0.4–3
	fiber	9–30
	amino acids	*
Cotton	oil content	16–22
	moisture	8–16
Cotton seed oil meal	oil content	0.7–2
	moisture	9.5–12
Safflower	oil content	25–32
	moisture	5–8
Peanut	protein	29–38
	moisture	2–4
	oil content	30–48

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Oilseeds, oils & processing products

Product	Parameters	Measurement range, %
Sesame	protein	19–28
	moisture	2–5
	oil content	45–58
	ash	4–7
Flaxseed (linseed)	oil content	30–42
	moisture	6.2–8.8
Flaxseed oil cake	protein	25–35
	moisture	6.5–10.5
	fat	5–33
Camelina (false flax)	oil content	36–42
	moisture	5.5–9
Camelina meal	protein	40–44
	moisture	9–13
	oil content	0.6–2.7

Product	Parameters	Measurement range, %
Mustard seed oil cake	protein	29–38
	moisture	7–12.5
	oil content	8–11
	fiber	6.5–11
Wheat oil meal	ash	1.4–2
	moisture	10–18
Edible vegetable oils	acid value	0–7 mg KOH/g
	peroxide value (PV)	0–15 mEq/kg
	moisture	0–0.12
	insoluble impurities	0.002–1.4
	phosphorus-containing substances	0–8

Pulses/Legumes

Product	Parameters	Measurement range,%
Peas	protein	17–30
	moisture	8–11
Chickpeas	protein	15–30
	moisture	7–10
Lentil	protein	23.5–31

Product	Parameters	Measurement range,%
Lupin	protein	31–44
	moisture	8–14
	fat	6–9
	fiber	8–16
	amino acids	*

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Feeds, mixed fodders & feed raw materials

Product	Parameters	Measurement range, %
Poultry feed	protein	10–30
	moisture	8–15
	fat	1–10
	fiber	2–9
	phosphorus	0.4–0.9
	ash	4–9
	amino acids	*
Swine feed	protein	10.6–23.6
	moisture	8–15
	fat	2–6.5
	fiber	1.6–9.3
	phosphorus	0.4–0.9
	ash	4–9
	amino acids	*
Cattle feed	protein	15.8–22
	moisture	8–15
	fat	2.2–6.5
	fiber	3.2–8.3
	phosphorus	0.4–0.9
	ash	4–9

Product	Parameters	Measurement range, %
Fish feed	protein	33–46
	moisture	2–10
	fat	16–32
	fiber	0.5–4
	ash	5–13
Hay	protein	5–20
	fiber	24–44
	fat	0.8–3.5
	carbohydrates	1–16
	phosphorus	0.05–0.3
	ash	4–13
Nutrient stillage	protein	20–40
	moisture	1.5–13
	fat	7–11
	fiber	12–17
	ash	1.2–2.1

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lysine, methionine, alanine, arginine, valine, histidine, glycine, isoleucine, leucine, proline, serine, threonine, tyrosine, phenylalanine.

Meat & fish

Product	Parameters	Measurement range, %
Meat and meat products, incl. offal, minced meat, sausages	protein	4–32
	moisture	10–80
	fat	0.5–90
	ash	0.5–3.3
	salt (NaCl)	0.9–2.9
Meat and bone meal	protein	30–60
	moisture	4–12
	fat	25–35
	ash	3.4–34
	phosphorus	0.03–4.5
	calcium	0.1–8
	amino acids	*
Feather meal	protein	83–93
	moisture	2–6
	fat	3–8

Product	Parameters	Measurement range, %
Fish	protein	12–21
	moisture	60–82
	fat	0.1–20
	salt (NaCl)	2.3–8.2
Fish meal	protein	60–77
	protein (according to Barnstein method)	52–69
	non-protein nitrogen (NPN)	0.4–3
	moisture	4–10
	fat	6–11
	ash	13–20
	phosphorus	2–5
	calcium	2–11
	amino acids	*

Sauces

Product	Parameters	Measurement range, %
Ketchup	moisture	69–72
	dry matter	26–31
	acidity (titratable acids)	1.1–1.5
	chloride	2.2–2.5
	fluidity	2.9–4.3
Mayonnaise and mayonnaise sauces	fat	5–95
	moisture	1–95
	acidity (titratable acids)	0.05–10
	egg yolk powder	0.5–5
	chloride	1–1.5

Product	Parameters	Measurement range, %
Soy sauce	protein	2–3.3
	dry matter	23–41
	acidity (titratable acids)	0.3–0.6
	pH	4–4.8
	salt (NaCl)	9.3–17

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Milk & dairy products

Product	Parameters	Measurement range, %
Milk, skimmed milk (normalized, pasteurized, ultra-pasteurized)	fat	0.15–7.10
	protein	2.40–4.70
	solids-non-fat (SNF)	8–9.5
	lactose	3.9–5
	density	1025–1031 kg/m³
	freezing point	-0.57... -0.45 °C
	dry matter	10–15.5
	casein	2.28–2.75
Cream	fat	5.5–50
	protein	1.5–5
	moisture	50–78
Sour cream	protein	2.5–7
	fat	14–21
	titratable acidity (lactic acid)	0.63–0.756
Yogurt	fat	0.8–9
	protein	2.5–4
	sugar	5–12
	dry matter	17–25

Sample type	Parameters	Measuring range, %
Milk powder (whole milk powder, skimmed milk powder)	protein	25–36
	moisture	2–7
	fat	0.06–40
	ash content	7.6–8.1
	lactose	47–62
	titratable acidity (lactic acid)	0.126–0.189
Cottage cheese, curds	fat	0–43
	protein	3–27
	moisture	21–84
	titratable acidity (lactic acid)	0.882–3.114
	lactose	1.3–4.8
	sugar	7–34
Butter	fat	40–85
	moisture	13–60
	solids-non-fat (SNF)	0.15–10
Cheese	fat	7–55
	moisture	34–75
	salt (NaCl)	1–4

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