PanReac AppliChem
ITW Reagents

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Dairy Products

Fat content determination

During their handling and processing, milk and dairy products are subjected to stringent analytical controls to guarantee their composition and quality. Commission Regulation (EC) No 273/2008, of 5 March 2008, lays down parameters to determine the reference limits and methods for the chemical, physical and microbiological analysis, and for the organoleptic evaluation, of milk and dairy products. It also states that other methods can be used, as long as they are properly calibrated and are regularly checked against the reference method.

One of the determining parameters is fat content. The reference methods and other methods often used to determine fat content in Milk and Cheese samples are detailed below.
PanReac AppliChem has the reagents required for these methods.

Milk

	Gravimetric method (Reference method) (ISO 1211)	Butyrometer method (Gerber method) (ISO 2446)
Scope	Raw cow milk, raw sheep milk, raw goat milk, reduced fat milk, skimmed milk, processed liquid milk and chemically preserved milk.	Whole milk and partially skimmed milk.
Principle	An ammoniacal ethanolic solution of a test portion is extracted with diethyl ether and petroleum ether. The solvents are removed by distillation or evaporation. The mass of the substances extracted is determined by weighing. (Röse-Gottlieb Method).	After dissolving the proteins by adding sulfuric acid, the fat in the product is separated by centrifuging it in a butyrometer. The separation is enhanced by the addition of isoamyl alcohol.

Gravimetric method (Reference method) (ISO 1211)

Description	Code	Package
Ammonia 25% (as NH3) (Reag. USP, Ph. Eur.) for analysis	121129.1611	1000 ml
	121129.1612	2.5 l
	121129.1214	5 l
Congo Red for analysis	121611.1605	10 g
	121611.1606	25 g
Diethyl Ether stabilized with ~6 ppm of BHT (Reag. Ph. Eur.) for analysis, ACS, ISO	132770.0311	1000 ml
	132770.0314	5 l
Ethanol 96% v/v for analysis, ACS	131085.1611	1000 ml
	131085.1211	1000 ml
	131085.1612	2,5 l
	131085.1212	2,5 l
	131085.1214	5 l
Petroleum Ether 40-60°C for analysis, ACS, ISO	131315.1611	1000 ml
	131315.1612	2.5 l
	131315.1714	5 l
	131315.0314	5 l

Butyrometer method (Gerber method) (ISO 2446)

Description	Code	Package
3-Methyl-1-Butanol according to Gerber for analysis	121079.1211	1000 ml
	121079.1212	2.5 l
	121079.1214	5 l
Sulfuric Acid 90-91% according to Gerber for analysis	121010.1611	1000 ml
	121010.1211	1000 ml
	121010.1612	2.5 l
	121010.1212	2.5 l
	121010.1214	5 l

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Cheese

	Gravimetric method (Reference method) (ISO 1735)	Butyrometer method (Gerber method) (ISO 3433)
Scope	All types of cheese and processed cheese.	Cheese
Principle	A portion is digested for analysis with hydrochloric acid and then ethanol is added. The ammoniacal ethanolic solution is extracted with diethyl ether and petroleum ether, and the solvents are eliminated by distillation or evaporation. The mass of the substances extracted is determined (Schmid- Bondzynski-Ratzlaff Method).	After dissolving the proteins by adding sulfuric acid, the fat in the product is separated by centrifuging it in a Van Gulik butyrometer. The separation is enhanced by the addition of isoamyl alcohol.

Gravimetric method (Reference method) (ISO 1735)

Description	Code	Package
Diethyl Ether stabilized with ~6 ppm of BHT (Reag. Ph. Eur.) for analysis, ACS, ISO	132770.0311	1000 ml
	132770.0314	5 l
Ethanol 96% v/v for analysis, ACS	131085.1611	1000 ml
	131085.1211	1000 ml
	131085.1612	2.5 l
	131085.1212	2,5 l
	131085.1214	5 l
Hydrochloric Acid 37% for analysis, ACS, ISO	131020.1211	1000 ml
	131020.1611	1000 ml
	131020.1212	2.5 l
	131020.1612	2.5 l
	131020.1214	5 l
Hydrochloric Acid 25% for analysis, ISO	133378.1611	1000 ml
	133378.1612	2.5 l
	133378.1214	5 l
Petroleum Ether 40-60°C for analysis, ACS, ISO	131315.1611	1000 ml
	131315.1612	2.5 l
	131315.1714	5 l
	131315.0314	5 l

Butyrometer method (Gerber method) (ISO 3433)

Description	Code	Package
Amyl Alcohol according to NF V 04-210 for analysis	125715.1611	1000 ml
Sulfuric Acid d(20)=1,522±0,005 according to Van Gulik for analysis	173253.1611	1000 ml