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Nestlé Quality Assurance Center
Dublin

Technical Datasheet

Analysis Name: Milk Powders and Similar Products - Osmolality by vapor pressure depression

Method Number: LI-08.067 WI

Scope of Application: This instruction describes an in-house method for determination of Osmolality by vapour pressure depression. It has been validated for reconstituted milk, nutritional powders, liquid milks and liquid nutritional products.

Description: The sample is placed on a filter paper disk and inserted into a sample chamber. The chamber is sealed, sample and chamber equilibrates and temperature is recorded. The thermocouple above the sample is cooled below the dew point temperature and water condenses on the surface. Then the electrical current is turned off and heat of condensation causes the thermocouple temperature to rise to temperature at which condensation ceases. When this plateau is reached, the dew point temperature is recorded. This final temperature is proportional to the dew point temperature depression and is reported as units of osmolality.

Sample Weight Required: 50g

Method Reference: NA

Analytical Platform: Osmometer

Special Information: The measurement range of vapour pressure osmometry is about 100 – 3000 mOsmol/kg. This method is strongly recommended for measurement of viscous products (about >2 mPa*s) or high osmotic products (about >300 mOsmol/kg) or on those containing particulate matter that can act as crystallization nuclei, which cannot be measured accurately by freezing point methodology. For product containing substantial amounts of volatiles (e.g. ethanol) or for osmolalities lower than about 100 mOsmol/kg, this method is not recommended. In this case the osmolality should be measured by freezing point depression methodology by LI-08.066.

mOsmol/kg = mmol/kg



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Analyte Reported	Alias	Unit of Measure	Limit of Quantification	Reproducibility
Osmolality		mOsm/kg	50 mOsm/kg	+/- 5mOsm/kg