Glossary

- **1. Milk** It is defined as a complex colloidal dispersion having fat globules, casein and whey proteins in an aqueous suspension consisting of lactose, minerals and vitamins and minerals.
- **2.** Thermal conductivity It is a parameter that can be used to design dairy processing equipments.
- 3. **Density** The density of a substance is its mass per unit volume. The density of bulk milk (4% fat and 8.95% solids-not-fat) at 20° c is approximately 1,030 kg m⁻³.
- **4. Specific gravity -** Specific gravity or relative density is the ratio of the density of the substance to that of water at a specified temperature.
- **5. Thermal expansion coefficient** The thermal expansion coefficient is the factor which governs the influence of temperature on density and hence it becomes necessary to specify temperature while elaborating on density or specific gravity.
- **6. Opacity** The opacity of milk is due to the presence of suspended particles such as fat, proteins and minerals.
- **7.** Freezing point of milk The freezing point of milk is lower than the freezing point of water because of the dissolved components present in milk. Determination of the freezing point of milk is used as a legal standard to determine if milk has been diluted with water.
- 8. Viscosity Viscosity is a measure of thickness of milk. Determination of viscosity of milk and milk products is important to know the rate of creaming, the rate of mass and heat transfer, the flow conditions in dairy process.
- **9.** Non-Newtonian behavior Cooled raw milk and cream exhibit non-Newtonian behavior. In this case, viscosity is dependent on the shear rate.
- **10. Surface tension -** The forces that cause a decrease in the surface or interfacial area are referred to as surface tension or interfacial tension. The presence of surface-active agents i.e. surfactants, influences the surface tension of water.
- **11. Surfactants** Casein micells, phospholipids, whey proteins and fatty acids are the surface-active components present in milk. These surfactants can readily absorb at an airwater interface and reduce surface tension.
- **12. Refractive index -** The refractive index of a transparent material is defined as the ratio of the velocity of light in air to the velocity of light in the medium.
- 13. Specific heat capacity The specific heat capacity of a material is defined as the quantity of thermal energy required to raise the temperature of unit mass of the material by 1^{0} c.
- **14. Titratable Acidity -** Titratable acidity is a measure of the buffering of milk between pH 6.6 and 8.3 (which is the phenolphthalein end point).
- **15. pH or Acid-base equilibria -** It is an indicator of the acidity of milk. The pH of bovine milk at 25^oc is between 6.5 and 6.7. Compositional variations are mainly responsible for the differences in pH and buffering between individual lots of fresh milk.