1.2.2 Congealing point

The congealing point of a liquid or of a melted solid is the highest temperature at which it solidifies. The congealing point of the liquid is the same as the melting temperature of the solid, but since the liquid may be cooled to a temperature below its congealing point without assuming the solid form, the method described below is used to determine the congealing point of a liquid or of a melted solid.

Apparatus

A suitable apparatus consists of a test-tube of about 2 cm internal diameter and about 10 cm in length, suspended by means of a bored cork inside a larger tube, about 3 cm in diameter and 12 cm in length, a vessel with water or suitable freezing mixture, and an accurately standardized thermometer.

Recommended procedure

Unless otherwise specified in the monograph, place in the inner test-tube about 10 ml of the liquid, or 10 g of the melted solid, to be tested and cool together the inner and the outer tubes in water or in a suitable freezing mixture to a temperature about 5 °C below the expected congealing point of the liquid; with the thermometer gently stir the liquid until it begins to solidify. At first there is a gradual fall in temperature. Then, as the solid phase forms, the temperature remains constant for some time or rises before becoming constant. The highest temperature observed is regarded as the congealing point. If the liquid does not start to congeal within 2 °C of the expected temperature, congelation may be induced by adding a small crystal of the substance to the liquid or by rubbing the inner walls of the test-tube with the thermometer.