

Melting Point

***The temperature at which a solid melts and becomes a liquid is the melting point .**

***Melting Point of a substance is the temperature at which the material changes from a solid to a liquid state .**

The physical properties of a compound , such as melting point can provide useful information which can help in the identification of a sample or to establish its purity . Since this requires that the intermolecular forces that hold the solid together have to be overcome. The temperature at which melting occurs will depend on the structure of the molecule involved – an example of the relationship between structure and properties .

***Different compounds tend to have different melting points .**

A pure , nonionic, crystalline organic compound usually has sharp and characteristic melting point (usually $0.5 - 1.0\text{ }^{\circ}\text{C}$) .Pure samples usually have sharp melting points , for example $149.5 - 150\text{ }^{\circ}\text{C}$ or $189 - 190\text{ }^{\circ}\text{C}$; impure samples of the same compounds melt at a lower temperatures and over a wider range , for example $145 - 148\text{ }^{\circ}\text{C}$ or $186 - 189\text{ }^{\circ}\text{C}$.

A mixture of very small amounts of miscible impurities will produce a depression of the melting point and an increase in the melting point range . Consequently , the melting point of a compound is a criterion for purity as well as for identification .

The melting point of an organic solid can be determined by introducing a tiny amount into a

small capillary tube , attaching this to the stem of a thermometer centered in a heating bath , heating the bath slowly and observing the temperatures at which melting begins and is complete .

