



## THE EFFECT OF TEMPERATURE AND TORSION ON THE STRUCTURE OF A SACCARIDE

For this work, cleanliness is very important. All lab benches and equipment must be scrubbed with hot soapy water. After the preparation, glassware must be thoroughly scrubbed. If traces of sucrose are left in the beaker, scorching will occur when the beaker is reused.

### Materials:

600mL beaker, stirring rod, Bunsen burner, ring stand, wire gauze, beaker tongs, graduated cylinder, thermometer, paraffin-coated paper.

### Reagents:

Sucrose, 3 M glucose solution, potassium tartrate, hydrogenated vegetable oil, food-coloring, flavoring (4-hydroxy-3-methoxybenzaldehyde, 3-p-menthanol, isoamyl acetate, or others).

### Procedure:

Place in the 600mL beaker 120g of sucrose, 1.0g of potassium tartrate, 30.0mL of 3 M glucose solution and 30.0mL of water. Thoroughly mix with stirring rod. Place over a gentle flame until all the sucrose has dissolved, stirring constantly. Increase the heat and DO NOT STIR during the rest of the heating. Wash the sides of the beaker with a rod covered with a folded paper towel. This will prevent the formation of crystals.

While heating, prepare the paraffin-coated paper and spread out hydrogenated vegetable oil. When the solution begins to boil, insert the thermometer. Heat until the thermometer registers 150°C.

As soon as the mixture reaches 150°C, remove the heat. The quantity of heat is directly proportional to the viscosity. This is an important factor in determining the end point of the reaction. If multiple colors/flavors are wanted, sample must be divided. Add about 2mL of plant extract and stir. Add 2 drops of food colorings. Pour the mixture on a paraffin-coated paper that has been lubricated with hydrogenated vegetable oil. Also, melt by friction some of the oil in the palms of your hands. Immediately after pouring, fill beaker with water to help with cleanup.

When the mixture has cooled, work it to counter the tensile strength of both portions. Continue to stretch. Divide the portions and intertwine. When in the desired position, run entire structure under cold tap water.

Consider consuming the product.

Use soap and hot water to thoroughly clean all equipment.