

PARTIAL THERMAL DEGRADATION OF A MIXED SACCHARIDES TRIOL SOLUTION

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Teacher Notes

This procedure works best for students working in groups of two.

This experiment was developed as a follow-up to the peanut brittle experiment (Partial Thermal Degradation of Mixed Saccharides With Protein Inclusions).

Since this experiment uses food materials and prepares an edible product, all materials must be food-safe. Apparatus and “chemicals” used must be reserved for food use only. They must be stored in a food-safe environment, away from any possible laboratory chemical contamination.

Label each ingredient with the “chemical” name of the material using self-sticking labels placed on top of, or next to, the original label. Allow the actual label of the ingredient to be visible and readable.

The materials used in this experiment are:

- sucrose crystals = granulated sugar
- 3 M glucose = white Karo syrup (corn syrup)
- protein pellets = raw peanuts
- solidified mixed esters = margarine
- 4-hydroxy-3-methoxybenzaldehyde = vanilla extract
- sodium chloride = table salt
- sodium bicarbonate = baking soda
- theobromine powder = cocoa powder
- menthol/menthone solution = peppermint extract
- limonene/monoterpene solution = lemon extract
- food color
- glycerin

Caution students to observe the temperatures carefully.

All stirring must be done with heavy glass stirring rods or wooden spoons. Students should never stir with a thermometer.

The flavorings are added to the taffy after the heating is completed.

The food colors are added during the stretching process.