

# LAB: GEL WORMS

## **Background:**

Sodium alginate is a chemical that is found naturally in brown algae (seaweed). Alginate is used in food because it is a powerful thickening and gel-forming agent. Some foods that may include alginate are ice cream, fruit snacks, salad dressings, pudding and onion rings.

Calcium lactate is a type of salt. It is used in foods (it's an ingredient in baking powder) and as a medicine. Calcium lactate is added to sugar-free foods like chewing gum, to prevent tooth decay. As a medicine, calcium lactate is used as an antacid or to treat calcium deficiencies.

In order to form a gel, sodium alginate needs to come in contact with calcium ions. When sodium alginate reacts with calcium lactate, a polymer is formed (which is a long chain molecule). This polymer is a gel.

**Materials:** pie pan, syringe, sodium alginate solution, calcium lactate solution

## **Directions:**

1. Pour 200 mL calcium lactate solution into the pie pan.
2. Fill the syringe with 25 mL sodium alginate solution.
3. Using the syringe, add the sodium alginate solution to the calcium lactate solution in the pie pan.... Add one drop at a time to get beads or squeeze the solution into the beaker to make strings or worms.

## **Questions:**

1. Is this experiment a physical or chemical change?
2. What natural substance does sodium alginate come from?
3. Why is sodium alginate used in food?
4. What baking ingredient is calcium lactate found in?
5. What is formed when sodium alginate reacts with calcium lactate?