

Sodium Alginate—A Natural “Gummy Worm” Polymer Worksheet

1. Describe the appearance, form, and texture of (a) sodium alginate solution, (b) calcium alginate, and (c) copper alginate.

2. *a.* What causes the calcium and copper products to appear swollen and translucent?

b. What evidence is there that copper ions are incorporated into the alginate polymer?

3. How and why does the appearance of calcium alginate change when it is placed in saturated sodium chloride solution?

4. Polymer solutions form solid gels when numerous long-chain polymer molecules interact to build a three-dimensional “network.” Explain how calcium and copper ions bind alginate molecules together to form a network.

5. Calcium alginate is spun into fibers that are used to make gauze-type dressings for burns and other wounds. Suggest some possible advantages of calcium alginate wound dressings compared to other types of materials.