**Polymer Activity**

**Aim:**

To observe how two polymers react when water is added to them. (Both polymers are composed of sodium polyacrylate. However, one is cross-linked and the other is not.)

**Materials:**

1 spoonful (2g) of sodium polyacrylate 1 spoonful (2g) of Instant Snow Polymer

40 ml distilled or deionized water Graduated cylinder

Teaspoon or electronic scale 2 Clear plastic cups

**Method:**

\_\_\_ 1) Measure out the sodium polyacrylate and place it in one of the cups.

\_\_\_ 2) Measure out the Instant Snow Polymer and place it in the other cup.

\_\_\_ 3) Measure out 20 ml of water and add it to the cup with sodium

polyacrylate. Observe what happens and record your observations in

the results table on the back.

\_\_\_ 4) Measure out 20 ml of water and add it to the cup with Instant Snow

Polymer. Observe what happens and record your observations in the

table.

\_\_\_ 5) Compare the two cups and note differences and any guesses for why.

\_\_\_ 6) Clean up your experiment.

\_\_\_ 7) Read the handout on Polymers and see if you can figure out why

there was a different reaction.

**Results:**

|  |  |
| --- | --- |
| **Observations for Sodium Polyacrylate** | **Observations for Instant Snow Polymer** |
|  |  |

**SNOW POLYMER LAB**

In this lab, you and your group will investigate an independent variable to see how it affects a dependent variable. The dependent variable for all groups will be the evaporation rate of the water in the snow polymer.

**Steps:**

\_\_\_ 1) As a group, brainstorm at least 3 variables you think may be important in changing the rate of evaporation of water from the snow polymer. Show this list to your teacher.

\_\_\_ 2) With your group, choose only ONE of these to be your independent variable.

\_\_\_ 3) Write an ***aim statement***. This will be in the format a cause/effect statement. For example, ***“To see the effect of (your independent variable) on the rate of water evaporation”***

\_\_\_ 4) Write your ***hypothesis***. State as an If, Then, Because statement:

***“If the \_\_\_\_ is changed then the water will evaporate \_\_\_\_. This is because \_\_\_\_\_\_\_”***

\_\_\_ 5) All the variables you listed in #1 that are NOT your independent variable are your ***constants***. In the space below, please list these variables that you will not allow to change as you conduct your experiment.

\_\_\_ 6) Briefly explain how will you ensure that each of these controls will be kept the same.

\_\_\_ 7) Now discuss and record the actual design of your experiment, listing procedures you plan to follow. You’ll need at least 3 trials of at least 3 different values of your independent variable. Remember to mention keeping the constants and be sure to explain how you will keep your measurements of the dependent variable accurate. Make a step-by-step, numbered rough draft of your general ***lab procedure***.

\_\_\_ 8) Design a ***data table*** to record your measurements of a two-week period.

\_\_\_ 9) Show your plan to your teacher for approval. Once you are approved, you and your partners can begin to set up, run, and collect data for your experiment.

\_\_\_ 10) Once all of your data has been collected, create a ***graph*** to display your data. Be sure to label your x and y axes appropriately.

\_\_\_ 11) Write a ***conclusion*** that summarizes the relationship between each change of the independent variable and the dependent variable. What was the answer to your aim and why do you think that happened?