Quantities in Chemical Reactions: Slime Lab

Many products are produced through combining specific quantities of reagents in a specific procedure to create a desired end product. A chemical formula will show the relative quantities of reagents required and the relative quantities of products that can theoretically be obtained. A detailed procedure will outline how the reagents are to be mixed and treated to safely obtain the product required.

The chemical equation (using volumetric proportions) for this lab could be written as follows:

150 H_2O + borax + 50 glue + colour → coloured slime + coloured H_2O

However, this does not describe specifically how to obtain the slime product. The procedure begins by making two separate mixtures, using different combinations of the reagents. The solutions are then mixed together to create a polymerization reaction. Polymerization is the creation of a long molecule through the covalent bonding of many small, identical molecules. As with many reactions there are by products or left over reagents that can sometimes be recycled or must be safely discarded.

Safety: In this lab liquid waste may be rinsed down the drain and solid waste can go in the garbage. This product CANNOT be ingested and must be kept from very small children and pets.

- In a 250mL beaker add 50mL water to 50mL white glue. Mix together completely.
    - Add in a couple drops of food colouring if desired
- Add `2.6 g of sodium borate` to the water and glue solution while stirring
- Continue to stir solution (vigorous stirring may be required).
- When the polymerization seems to have ceased, add another 1.5mL (half a spoon) of borax while stirring the mixture
- The solution will become increasingly difficult to stir as the polymerization reaction continues, so you may need to continue to mix by hand.
- There is usually some liquid remaining after the polymerization has completed
- Do not leave slime on surfaces that may be stained. Store slime in a sealed bag in the refrigerator as it is prone to mold growth and evaporation.