December 5, 2020

Mr. Reginald Brown

Director of Materials Testing

CheMystery Labs, Inc.

51 Fulton Street

Springfield, VA 22150

Dear Mr. Brown,

In our research for creating a new type of glaze for our ceramic pottery, we have run into a problem. We have tried using a variety of compounds to develop a fixative for the glaze but have failed to find one that meets our criteria.

The compound in the fixative must be transparent when it dissolves and white when it dries so that it will not affect the other colors in the glaze. Next, the compound must have a high melting point for the kiln firing. We would like the fixative to dissolve in water, but not in oil. Finally, the compound must be electrically conductive, when it is dissolved in water or melted. We have identified four compounds for study: sucrose, sodium chloride, sodium carbonate, and salicylic acid. You should determine which of these substances would best fit our criteria. Please thoroughly justify your reasoning in a report and identify the type of bonding in each compound (i.e. polar, nonpolar, ionic, etc.).

I look forward to hearing from you. If you have any questions, please see call our Chemical Engineering supervisor, Mrs. Lange, at Memorial High School.

Sincerely,

*Kathleen Sylva*

Kathleen Sylva

Head Researcher

Ceramic Artisans