Name: _____

Investigation: Evidence of Chemical Change

The purpose of this investigation is to further develop science investigation skills and to review the evidence for chemical change.

The pre-lab questions and investigation planning must be completed before you will be permitted to do the investigation.

Investigation Procedure

1. Carry out any necessary safety preparations – tie long hair back, put all chairs and bags to the side to keep the aisles clear, clear off workbenches.
2. Place ¼ teaspoon of sodium bicarbonate ($NaHCO_3$) and ½ teaspoon calcium chloride ($CaCl_2$) into opposite corners of a zip lock bag.
3. Fill a film canister with 5 ml cresol red solution. Carefully place the cup in the bag, keeping it upright until after you zip the bag closed.
4. Squeeze out as much air as possible and seal the bag.
5. Keeping the bag sealed, tip the film canister over, mix the chemicals together, and observe the results.
6. Record what you did and what you observed on your data collection sheet. Record the evidence you think indicates a chemical change.
7. Return all materials, wash your hands and clean your workbench.

Pre-lab SDS and Lab Prep Questions

You will need to review the SDS for Cresol Red, Sodium Bicarbonate and Calcium Chloride to answer the following questions.

1. What does SDS stand for? (1 mark) _____
2. From Section 2 (Hazards Identification) of the SDS, which of the substances are considered hazardous, and what kind of cautions are given? (1 mark)

_____

_____

_____

3. What are 2 differences in physical and or chemical properties (Section 9) between Cresol Red, Sodium Bicarbonate and Calcium Chloride? (2 marks)

(a)
(b)

4. What first aid measures (Section 4) can be taken if… (2 marks)

(a) … Cresol Red is accidentally splashed into your eyes?
(b) …Calcium Chloride is accidentally ingested?

5. For each substance used in your investigation, what substances should you avoid mixing with them? (See Section 10: Stability and Reactivity) (3 marks)

Cresol Red:
Sodium Bicarbonate:
Calcium Chloride:

6. Why should contact with moisture be avoided for Calcium Chloride? (1 mark)

_____

7. Why should particular care be taken if Calcium Chloride is heated to decomposition as compared to Sodium Bicarbonate? (Section 5: Fire Fighting Measures) (1 mark)

_____

_____

8. What are possible clues or indicators that a chemical change has occurred? (5 marks)

(a)

(b)

(c)

(d)

(e)

LAB - OBSERVATION SHEET

Name: _____ **Lab Partners** _____

Lab Activity Title: (1 mark)

_____

Purpose: (1 mark)

_____

_____

_____

_____

_____

_____

Observation Table: (7 marks)

Your table should have the columns "Initial, during and final" to record the progression of the change being observed. Should be as neat as possible.

Conclusion: (3 marks)

Based on your observations did a chemical change occur? Justify your answer with evidence seen from the lab.

Sources of Error & Suggestions for improvement (2 marks)

Total: _____/30