

Household Chemical Analysis

REACTION 1

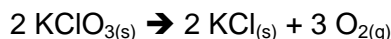


It was reported in the paper that a potentially dangerous incident occurred while someone was cleaning. The person thought they were mixing a mild detergent solid and with a common liquid cleanser to clean the kitchen sink. Typically, this mixture becomes very soapy and turns light blue. However, when the solid and the solution were mixed, an unanticipated reaction occurred. There was a lot of fizzing and a clear and colourless solution was left behind. You have been hired to determine the identity of all the chemicals in this reaction.

Another lab was hired to assist you and they have determined that the solid was a calcium compound. The other lab also successfully proved that the unknown aqueous reactant was a chloride compound and that it is extremely dangerous to heat this solution so **DO NOT HEAT THIS REACTANT**. The other lab has used up their funding, so now you must finish the analysis.

Safety is a big issue with any analysis of this kind, so the most logical place to start is to determine the chemical composition of the chemicals involved in the reaction. Using chemical tests that you have learned, you need to develop a procedure to complete this analysis to verify the identity of as many reactants and products as possible. You should then use this information to predict the chemical reaction involved to identify other chemicals present. If the reaction is safe (based on your analysis), you need to repeat the original reaction and test any products to verify your prediction. It is imperative that you first make your prediction and then test it or you will be wasting a lot of time. When you are finished your analysis, fill out the Chemical Analysis Form 1-A and 1-B, which can be used in a court of law so you must be thorough and precise because you may have to defend your analysis.

REACTION 2



It was reported in the paper that a potentially dangerous incident occurred while someone was cleaning. The person thought they were using baking soda to clean the stove. However, the stove-top element was still a little hot and when the “baking soda” touched the element, snapping noises were heard and the powder created small flares and fumes. Clearly, this was not baking soda. You have been hired to determine the identity of all the chemicals in this reaction.

Another lab was hired to assist you and they have determined that the unknown solid was the only reactant and that it is safe to heat small quantities of the chemical. The other lab also successfully identified that the only metal involved in this reaction was potassium. The other lab has used up their funding, but they were working on developing tests to identify one of the products of the reaction using precipitation reactions. Now you must finish the analysis.

CHEMICAL TEST	PRECIPITATION INDICATES
Dissolve the unknown in 5 mL of deionized water and mix with solution of FeCl_3 .	OH^- is present
Dissolve the unknown in 5 mL of deionized water and mix with solution of $\text{Ba}(\text{NO}_3)_2$.	SO_4^{2-} is present
Dissolve the unknown in 5 mL of deionized water and mix with solution of AgNO_3 .	Cl^- is present
Dissolve the unknown in 5 mL of deionized water and mix with solution of dilute HCl .	HCO_3^- is present

Safety is a big issue with any analysis of this kind, so the most logical place to start is to determine the chemical composition of the chemicals involved in the reaction. Using chemical tests that you have learned, you need to

develop a procedure to complete this analysis to verify the identity of the reactant and as many products as possible. You should then use this information to predict the chemical reaction involved to identify other chemicals present. If the reaction is safe (based on your analysis), you need to repeat the original reaction and test any products to verify your prediction. It is imperative that you first make your prediction and then test it or you will be wasting a lot of time. When you are finished your analysis, fill out the Chemical Analysis Form 1-A and 1-B, which can be used in a court of law so you must be thorough and precise because you may have to defend your analysis.

Chemical Analysis Report 1-A

Fill out this official report for each chemical identified in the chemical reaction or process under investigation upon completion of chemical analysis.

1. Chemical Name: _____ Chemical Formula: _____

2. Chemical Tests and Results Used to Successfully Verify Chemical Identity

CHEMICAL FORMULA OF REACTANT 1	CHEMICAL FORMULA OF REACTANT 2 (IF APPLICABLE)	POINT-FORM SUMMARY OF PROCEDURE	RESULTS	TYPE OF REACTION (IF APPLICABLE)

3. Explanation of Verification of Chemical Identity (in the box provided)

--

Chemical Analysis Report 1-B

Fill out this official report for the chemical reaction or process under investigation upon completion of chemical analysis.

1. Chemical Reaction / Process Under Investigation Including States (in the box provided)

REACTANT(S)		PRODUCT(S)
	→	

2. Identify Reaction Type/Process Under Investigation (in the box provided)

3. Explanation of Verification of Reaction Type (in the box provided)