

Chemicals - R - Us

Step 3 Worksheet

(turn this in with your journal)

Due Date: _____

We have looked at the product: its origins, history and uses. We have examined physical and chemical properties of all the raw materials and products. Now it is time to look at the manufacturing process itself.

Write journal entries for each of the following. Use a separate page for each item.

- 1. Writing and Balancing an Equation** is simply writing the recipe in shorthand form for the production of your product. As we have already done these in class, you are familiar with the steps:
 - a. change word names into chemical formulas
 - b. write a skeleton equation
 - c. count atoms on each side of the equation, balance them by using coefficients only.
 - d. Continue adding coefficients until all elements are balanced
 - e. Check your work.
- 2. Determine the type of chemical reaction involved.** As discussed in class, there are many types of chemical reactions: synthesis, decomposition, dissociation, single replacement, double replacement and polymerization. Which type is your reaction and why?
- 3. Determine by-products and potential hazards.** Sometimes not only a product is made, but also a “useless” by-product. Determine from your chemical equation whether there is a by-product. Using MSDS information and/or the Merck Index, determine if there are potential hazards from the by-products. If there are, what precautions must you take? How will you dispose of the by-products?
- 4. Devise ways to “test” the desired qualities.** . Now that you have found out more about your product, review the qualities you believe are important in your product. Write a list of the 3 most important qualities. How will you know if your product has those qualities? . Determine a way to test for the qualities. You might begin by looking at the “recipe” handed out to you in Step 2. Note: Human testing is NOT acceptable. Think of an alternative!

Name: _____

Period: _____

Name: _____

Date: _____

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Step 3 Evaluation

Criteria / Value	Partner: (S/U)	Partner: (S/U)	Teacher: Score
Balancing the Equation (10 points)			
Chemical formulas correct (3 pt)			
All formulas in equation (2 pt)			
Equation balanced (5 pt)			
Type of Chemical Reaction (10 points)			
Type of Chemical Reaction (4 pt)			
Reasoning (6 pt)			
By-Products and Hazards (20 points)			
Identification of by-products (5 pt)			
MSDS or Merck Index Information (10 pt)			
Disposal Technique(s) (5 pt)			
Testing of Desired Qualities (60 pts)			
Appropriateness of Test #1 (5pt)			
Methodology of Test #1 (15 pt)			
Appropriateness of Test #2 (5 pt)			
Methodology of Test #2 (15 pt)			
Appropriateness of Test #3 (5 pt)			
Methodology of Test #3 (15 pt)			
TOTAL POINTS RECEIVED: (100 possible)			

STATEMENT FROM PARTNERS:

This project has been a joint effort from both of us. Time and effort on each individual section may not be exactly 50/50.

For this section _____'s contribution was _____% and
(name)

_____ 's contribution was _____%
(name)

(student signature)

(student signature)

STUDENT COMMENTS: