



High School Science Virtual Learning

Chemistry

Gram-Liter Stoichiometry

April 17, 2020



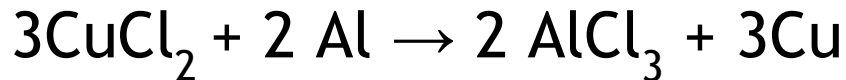
High School Chemistry

Lesson: April 17, 2020

Objective/Learning Target:

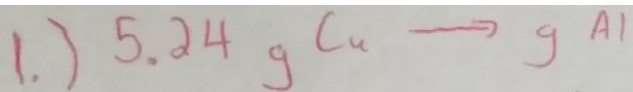
Students will be able to convert between liters and grams of different substances in a chemical reaction.

Let's Get Started:

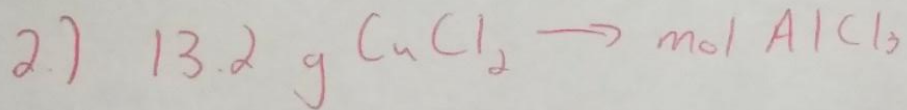


1. How many grams of aluminum are required to make 5.24 grams of copper?
2. 13.2 grams of copper (II) chloride reacted. How many moles of aluminum chloride can be produced?

Let's Get Started: Answer Key



$$5.24 \text{ g Cu} \left(\frac{1 \text{ mol Al}^{\text{Cu}}}{63.546 \text{ g Al}_{\text{Cu}}} \right) \left(\frac{2 \text{ mol Al}}{3 \text{ mol Cu}} \right) \left(\frac{26.982 \text{ g Al}}{1 \text{ mol Al}} \right) = \boxed{1.48 \text{ g Al}}$$



$$13.2 \text{ g CuCl}_2 \left(\frac{1 \text{ mol CuCl}_2}{134.452 \text{ g CuCl}_2} \right) \left(\frac{2 \text{ mol AlCl}_3}{3 \text{ mol CuCl}_2} \right) = \boxed{0.0655 \text{ mol AlCl}_3}$$

CuCl_2
63.546
+ 35.453 x 2
<hr/>
134.452 g/mol



Lesson Activity:

Directions:

1. Watch this [video](#), and take notes over the examples.



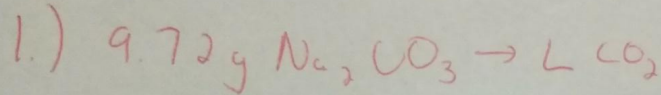
Practice

Complete the following questions using the information you learned during the lesson activity.

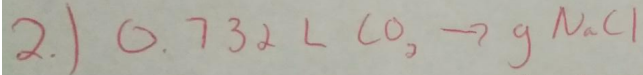


1. If 9.72 grams of sodium carbonate reacted, how many liters of carbon dioxide could be produced at STP?
2. How many grams of NaCl were produced, if 0.732 L of CO_2 were produced at STP?
3. What is the mass of 0.238 moles of hydrochloric acid?

Once you have completed the practice questions check with the **answer** key.



$$\frac{9.72 \text{ g Na}_2\text{CO}_3}{1} \left(\frac{1 \text{ mol Na}_2\text{CO}_3}{105.988 \text{ g Na}_2\text{CO}_3} \right) \left(\frac{1 \text{ mol CO}_2}{1 \text{ mol Na}_2\text{CO}_3} \right) \left(\frac{22.4 \text{ L CO}_2}{1 \text{ mol CO}_2} \right) = \boxed{2.05 \text{ L CO}_2}$$



$$\frac{0.732 \text{ L CO}_2}{1} \left(\frac{1 \text{ mol CO}_2}{22.4 \text{ L CO}_2} \right) \left(\frac{2 \text{ mol NaCl}}{1 \text{ mol CO}_2} \right) \left(\frac{58.443 \text{ g NaCl}}{1 \text{ mol NaCl}} \right) = \boxed{3.82 \text{ g NaCl}}$$

3.) $0.238 \text{ mol HCl} \left(\frac{36.461 \text{ g HCl}}{1 \text{ mol HCl}} \right) = \boxed{8.68 \text{ g HCl}}$



More Practice:

Follow the links below to do more practice.

1. [Worksheet](#) with answer key.
2. Only do Questions 1-9 on this [worksheet](#).



Additional Practice:
Click on this [link](#) for additional practice.