

The Mole and Stoichiometry

Show the work for all calculations on separate paper. Box your answers to each question.

CHAPTER 11 REVIEW

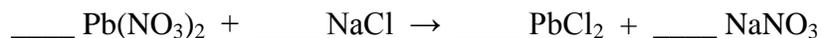
Ms. Pickett has a 1-mole sample of sucrose and a 1-mole sample of sodium bicarbonate.

1. Write the chemical formula for sucrose.
2. What type of particle makes up sucrose? How many such particles are in 1 mole of sucrose?
3. How many moles of oxygen are in 1 mole of sucrose?
4. How many grams are in 1 mole of sucrose?
5. Write the chemical formula for sodium bicarbonate.
6. What type of particle makes up sodium bicarbonate? How many such particles are in 1 mole of sodium bicarbonate?
7. How many moles of oxygen are in 1 mole of sodium bicarbonate?
8. How many grams are in 1 mole of sodium bicarbonate?
9. If the sample of sucrose contained 2.75 moles, how many grams would be present?
10. If the sample of sucrose contained 3.50 moles, how many moles of carbon would be present?
11. If the sample of sucrose contained 279.5 grams, how many moles would be present?
12. If the sample of sodium bicarbonate contained 3.25 moles, how many grams would be present?
13. If the sample of sodium bicarbonate contained 0.95 moles, how many moles of carbon would be present?
14. If the sample of sodium bicarbonate contained 55.0 grams, how many moles would be present?
15. If there were 2.75 moles of sucrose and 3.75 moles of sodium bicarbonate, which sample would have the greater number of particles?

CHAPTER 12 PRACTICE

Mole-to-Mole Conversions

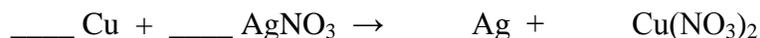
Balance the following chemical equation and use for Questions #16, #17, and #18.



16. How many moles of $\text{Pb}(\text{NO}_3)_2$ are needed to react completely with 0.055 moles of NaCl ?
17. How many moles of PbCl_2 will be formed when 0.575 moles of NaCl react with excess $\text{Pb}(\text{NO}_3)_2$?
18. How many moles of sodium nitrate are produced when 1.95 moles $\text{Pb}(\text{NO}_3)_2$ react with excess NaCl ?

Mole-to-Mass Conversions

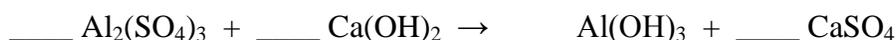
Balance the following chemical equation and use for Questions #19, #20, and #21.



19. Calculate the grams of $\text{Cu(NO}_3)_2$ produced by 1.89 moles copper reacting with excess AgNO_3 .
20. How many grams of copper are needed to react completely with 2.95 moles AgNO_3 ?
21. How much AgNO_3 in grams will be required to produce 9.70 moles $\text{Cu(NO}_3)_2$?

Mass-to-Mole Conversions

Balance the following chemical equation and use for Questions #22, #23, and #24.



22. If 165.7 grams of aluminum sulfate react with excess calcium hydroxide, how many moles of aluminum hydroxide will be formed?
23. Determine the number of moles of calcium hydroxide needed to react completely with 200. grams of aluminum sulfate.
24. How many moles of calcium hydroxide are necessary to produce 45.75 grams of aluminum hydroxide?

Mass-to-Mass Conversions

Balance the following chemical equation and use for Questions #25, #26, and #27.



25. Hydrochloric acid (HCl) reacts with excess calcium carbonate to produce 7.45 grams of carbon dioxide. How many grams of hydrochloric acid were needed to produce this amount of carbon dioxide?
26. How many grams of calcium carbonate are needed to react completely with 125.0 grams of hydrochloric acid?
27. A 75.0-gram sample of HCl reacts completely with excess calcium carbonate. How much calcium chloride (in grams) will be produced?

Conversions: Mixed Review

Balance the following chemical equation and use for Questions #28, #29, #30, and #31.



28. If 10.0 moles of aluminum oxide were produced, how many moles of oxygen were required?
29. How many grams of oxygen were required to produce 4.5 moles of aluminum oxide?
30. How many moles of aluminum oxide are produced when 2.50 grams of aluminum are used?
31. How many grams of oxygen are required to react completely with 35.7 grams of aluminum?