

Law of Conservation of Matter: Practice Problem

1. A student adds 10 grams of vinegar to 7 grams of baking soda in a sealed container. Then he watches the chemical reaction that occurs. Which of these predicts the mass of the materials in the container after the reaction is complete?

- A. 70 grams B. 17 grams C. 3 grams D. 0 grams

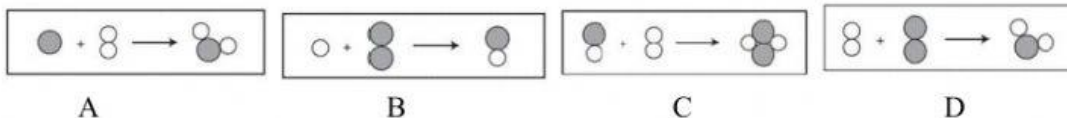
2. Which procedure best represents the law of conservation of mass?

- a. evaporating salt water leaves 5 grams of salt
- b. burning 2 kilograms of wood leaves 0.4 kilogram of ash
- c. using filter paper to separate 2 grams of solid from 10 grams of water
- d. combining 2 grams of copper and 4 grams of sulfur to produce 6 grams of copper sulfate

3. In the chemical formula for Magnesium chloride, NaCl_4 , what does the subscript 4 represent?

- a. 2 molecules of Magnesium
- b. Nothing
- c. 2 molecules of Chlorine
- d. 4 molecules of Chlorine

4. Which model demonstrates the Law of Conservation of Matter?



5. Which sample equation best illustrates the law of conservation of mass?

- a. 8 grams reactant U + 3 grams reactant V → 5 grams product W
- b. 12 grams reactant X + 10 grams reactant Y → 22 grams product Z
- c. 5 grams reactant E + 5 grams reactant F → 20 grams product G + 5 grams product H
- d. 10 grams reactant Q + 9 grams reactant R → 90 grams product S + 90 grams product T

6. The students placed an antacid tablet in a ziplock bag. The mass of the tablet, 30 grams, and the bag, 40 grams. Then they carefully added 30 grams of water and quickly sealed the bag. The tablet began to fizz and soon disappeared. The bag was filled with gas. If the total mass of the bag + tablet + water was 130 grams **before** the reaction, *what was the total mass of the bag + liquid + gas after* the reaction was completed?

- A. 70 grams B. 30 grams C. 130 grams D. 160 grams

7. A cube of water measured at 200 grams. The cup of water was placed in the freezer. What is the mass of the frozen cup of water? A. 250 grams B. 150 grams C. 200 grams D. 300 grams

8. What is the mass of Oxygen in the Reactants?

Reactants		Products
Magnesium (2 Mg)	+	Oxygen (O ₂)
12g	+	g
A. 12g	B. 20 g	C. 80 g
		D. 8g

9. What number should precede (be in front) H₂ in the chemical equation below in order for the equation to be balanced?



10. Due to the Law of Conservation of Matter, how many grams of carbon dioxide (CO₂) are formed in the reaction?



- A. 25g B. 32 g C. 60g D. 35g

11. Which equation represents the law of conservation of matter?

- a. $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$ b. $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$
 c. $2\text{Na} + \text{O}_2 \rightarrow 2\text{NaO}$ d. $\text{FeS} + 2\text{HCl} \rightarrow \text{FeCl} + 2\text{H}_2\text{S}$

12. According to the Law of Conservation of Matter, complete the missing grams for the products.

Reactants		Products
Magnesium (2 Mg)	+	Oxygen (O ₂)
48 g	+	32 g
		_____ g

13. According to the Law Of Conservation, how many grams are in the Reactant Magnesium?

Reactants		Products
Magnesium (2 Mg)	+	Oxygen (O ₂)
g	+	16 g
		→ 40 g

14. According to the Law Of Conservation, how many grams are in the Product?

Reactants		Products
Magnesium (2 Mg)	+	Oxygen (O ₂)
25g	+	8 g
		_____ g

