

Grams, Moles and Molecular Mass Worksheet

Reference: Tom Stretton Chemistry

1. What is the mass of 0.100 mol of each of the substances given below:
 - (a) Sodium carbonate, Na_2CO_3
 - (b) Ammonium tetraborate, $(\text{NH}_4)_2\text{B}_4\text{O}_7$
 - (c) Calcium cyclamate, $\text{Ca}(\text{C}_6\text{H}_{12}\text{NSO}_3)_2$
2. How many moles of sodium nitrate are in 1.70 grams of sodium nitrate, NaNO_3 , a substance used in fertilizers and to make gunpowder.
3. Ammonium sulphate, $(\text{NH}_4)_2\text{SO}_4$, is a fertilizer used to supply both nitrogen and sulphur. How many grams of ammonium sulphate are in 35.8 moles of $(\text{NH}_4)_2\text{SO}_4$.
4. A 0.500 mol sample of table sugar, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$, weighs how many grams?
5. A solution of zinc chloride, ZnCl_2 , in water is used to soak the ends of wooden fenceposts to preserve them from rotting while they are stuck in the ground. One ratio used is 840 grams ZnCl_2 to 4 L water. How many moles of ZnCl_2 are in 840 grams of ZnCl_2 ?
6. In the early 1970s, thallium sulphate, Tl_2SO_4 , a powerful poison, was illegally used in poison baits to control predators such as coyotes on western rangelands. Hundreds of eagles died after taking these baits. A 1.00 kilogram can of Tl_2SO_4 contains how many moles of this compound?

7. Borazon, one crystalline form of boron nitride, is a very hard material. It is used in cutting tools and in the manufacture of high-pressure cells. Borazon has a density of 2.34 g/cm³. How many moles of borazon are in a 1.00 kg sample of borazon?

8. A sample of a substance has a mass of 1.00 kg and a volume of 0.500 L. What is the density of the substance? (circle it?)

9. How many atoms/molecules are in a substance?

volume

5. Which choice below is a measure of height? (circle it?)

weight mass

10. How much space an object takes up (circle it?)

volume

6. Which choice below is a measure of height? (circle it?)

weight mass