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Moles and molar mass practice problems answers

Related topics: More chemistry lessons in Mathematics worksheets Mole, Mass & Avogadro Constant Material content, containing 6.02×10^{23} particles called clay (often abbreviated mole). 6.02×10^{23} is called the Avogadro Constant or the Avogadro number. The following diagram shows how to convert mass, clay and number of particles. Scroll down the page to learn more examples and solutions. Example: One carbon clay contains 6.02×10^{23} carbon atoms. One oxygen clay contains $6.02 \times 1,023$ oxygen molecules Molar mass A mass of one substance in clay is called molar mass. The molar mass of the substance is equal to its relative mass of the formula in grams. Example: What is the mass of 1 mole carbon? Solution: 1 mol clay mass = relative mass of the carbon formula = 12 grams Example: What is the molar mass of calcium carbonate (CaCO_3)? Solution: Step 1: From the periodic table, look at the relative atomic masses of atoms. Relative atomic mass (rounded to nearest integer): Ca = 40, C = 12, O = 16 Stage 2: calculate the relative weight of the formula. Calcium carbonate (CaCO_3) contains one calcium atom, one carbon atom and three oxygen atoms. Relative weight of the formula = $40 + 12 + (3 \times 16) =$ Step 100 Step 3: The relative mass of the formula is expressed in grams of clay. The molar mass of ethanol is 100 g/mol Example: what is the molar mass of ethanol ($\text{C}_2\text{H}_5\text{OH}$)? Solution: Step 1: From the periodic table, look at the relative atomic masses of atoms. Relative atomic mass (rounded to nearest integer): H = 1, C = 12, O = 16 Stage 2: calculate the relative mass of the formula. Ethanol ($\text{C}_2\text{H}_5\text{OH}$) contains two carbon atoms, six hydrogen atoms and one oxygen atom. Relative mass of the formula = $(2 \times 12) + (6 \times 1) + 16 =$ Step 46 Step 3: The relative mass of the formula is expressed in grams of clay. The molar mass of ethanol is 46 g/mol Introduction to moles Clay is like a dozen. This is the name of certain things. There are 12 things out of a dozen, and 602 hexillion things on clay. What are moles and why are they important? How to shorten the number of clay (Avogadro number) using a scientific notation and compare to see how huge this number is. Show step-by-step solutions for converting between moles, atoms and molecules How to convert between moles and the number of atoms or molecules using common sense method and standard conversion factor method? How to round up your answers with scientific notation and meaningful numbers? Example: How many atoms 5.5 moles? How many moles are 4.6×10^{24} sulfur atoms? Show step-by-step solutions for converting between moles, atoms and molecules (Part 2) More practice problems when converting between moles, atoms and molecules. Example: How many molecules are 0.63 molecules? How many moles are 3.9×10^{20} Magnesium atoms? Show Step-by-Step Solutions Clay and Avogadro Number | Atoms, compounds and ions | Chemistry Show Step-by-Step Solutions Avogadro Number, Mole and How to Use Avogadro Gas Act, Law, mole mass. Show step-by-step solutions Try the free Mathway calculator and problem solving to further practice various math topics. Try the following examples or enter your problem to review your response with step-by-step explanations. We welcome your feedback, comments and questions about this site or page. Provide your feedback or inquiries on our feedback page. If you see this post, it means that we have trouble loading external resources on our site. If you are behind a web filter, make sure that the domains *.kastatic.org and *.kasandbox.org unblock. The molar mass of the material is the mass of clay of one material. This collection of ten chemical testing questions relates to the calculation and use of clay masses. Answers are given after the final question. A periodic table is required to fill in the questions. Tetra Images/Getty Images Calculate The Molar Mass of CuSO_4 . Calculate the molar mass of CaCO_3 . Calculate the molar mass of $\text{Cr}_4(\text{P}_2\text{O}_7)_3$. Calculate the molar mass of $\text{RbOH} \cdot 2\text{H}_2\text{O}$. Calculate the molar mass of $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$. What is the mass of NaHCO_3 in grams of 0.172 moles? How many CdBr_2 moles are present in the 39.25 g CdBr_2 sample? How many cobalt atoms are 0.39 mole $\text{Co}(\text{C}_2\text{H}_3\text{O}_2)_3$ sample? What is the mass of chlorine in milligrams in 3.9×10^{19} Cl_2 molecules? How many grams of aluminum is 0.58 in $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ moles? 1. 159.5 g/mol2. 69.09 g/mol3. 729.8 g/mol4. 138.47 g/mol5. 474.2 g/mol6. 14.4 g7. 0.144 moles8. 2.35×10^{23} atoms9. 4.6 mg chlorine10. 31.3 g of aluminum To continue to enjoy our website, please confirm your identity as a human being. Thank you very much for your cooperation. If you see this post, it means that we have trouble loading external resources on our site. If you are behind a web filter, make sure that the domains *.kastatic.org and *.kasandbox.org unblock. Unblocked.