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Enter the molecular formula of the molecule. Example: C6H12O6, PO4H2(CH2)12CH3 Disionario&gr;Exenpros Paramolmas Mass Ain Danangsta's Cambridge Dictionary.Voche Pode Aidar! De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Resensor CC BY-SA The next step is to convert the time the sample eluted into a measurement of the molar mass. The De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Lisensor CC BY-SA Low Angle Light Scattering System was developed in the early 1970s and was able to calculate the molar mass using a single measurement. De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Resensor CC BY-SA Subsequently, scattered zero-angle light is associated with molar mass. De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Lisensor CC BY-SA permeability depends primarily on the charge and polarity of molecules, and the molar mass of molecules depends in no small part. De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Resensor CC BY-SA Large Mass Constant is important in writing dimensionally correct equations. De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Resensor CC BY-SA The average molar mass is relatively unaffected when this occurs. In addition to de Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Resensor CC BY-SA Monoduc disperse polymers, there is also a molar mass distribution, usually caused by chains of different lengths. De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Resensor CC BY-SA These equations can be used to calculate the molar mass of the solum from osmotic data. De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Lisensor CC BY-SA Large mass of air and water vapor accounts for the same volume of 22.414 liters. De Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Lisensor CC BY-SA1000g/ Substances with a molar mass around moles (e.g. thyroxine) are arranged almost vertically in mass and mole images. As the demand for de Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Lisensor CC BY-SA polymer properties increased, so did the need to obtain absolute information about the molar mass and size. Through a procedure called de Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Resensor CC BY-SAebulloscopy, unknown molar masses can be calculated using known constants. Little is known except for the mole mass, which is de Wikipedia Este Exengro et da Wikipedia e Pode Cell Lidemaysado Sob a Lisensor CC BY-SA14028.6899 g/mol. For instanceNumber of measurements Average molar mass and small angle laser light scattering measurement mass Average molar mass. For example, Wikipedia e can sob reuse Lysenka CC BY-SA from Wikipedia. Density, molar mass and critical temperature of the liquid must be known. For example, Wikipedia e can sob reuse Lysenka CC BY-SA from Wikipedia. If the molar mass exceeds 1000 g/mol, it is rarely appropriate to use more than one decimal place. For example, Wikipedia e can sob reuse Lysenka CC BY-SA from Wikipedia. Solubility in water decreases rapidly with increasing molar mass. For example, Wikipedia e can sob reuse Lysenka CC BY-SA from Wikipedia. For this reason, the average molecular weight, or more generally the molar mass, is mainly used. For example, Wikipedia e can sob reuse Lysenka CC BY-SA from Wikipedia. Mole mass constants are unusual (but not unique) among physical constants by having precisely defined values rather than being measured experimentally. For example, Wikipedia e can sob reuse Lysenka CC BY-SA from Wikipedia. Cusker Opinís Nos Exenpros ng o Apalam a Opinió dos Editor performs Disionario o Sousse Lissen. BETA Uma defined the mole mass Euma Paravula, where Aínda No is not a Cambridge dictionary. I could play before! Numerically, the molar mass is consistent with the molecular mass represented by the unit of atomic mass (amu), but its dimensionality is different; gram/mole. Instruction 1 If I have to calculate the molar mass of the gas, take the atomic mass of nitrogen and multiply it by index 2. In the end, I would get 28 grams/mole. However, how to calculate the molar mass of the gas mixture? You need to know which gases and which they are part of the mixture. 2 Let's consider a specific example. You have a gas mixture consisting of 5% hydrogen (mass), 15% nitrogen, 40% carbon dioxide, 35% oxygen and 5% chlorine. What is your molar fabric?Use a formula of a mixture consisting of ingredient x: M2x \* M1N1 + M2N2 + M3N3+. M is the molar mass of the component, and N is the mass percent (percent concentration) + MxNx. Learn the molar mass of the gas by remembering the magnitude of the atomic weight of the three elements (a periodic table is required here). Its mass number is known for the conditions in question. Replace and create formula valuesYou get: 2 \* 0.05 + 28 \* 0.15 + 44 \* 0.40 + 32 \* 0.35 + 71 \* 0.05 x 36.56 grams / mole. 4 Is it possible to solve the problem in a different way? How can the molar mass be calculated for each laboratory? Label the fabric M.5 and use a connected pressure gauge to measure the P pressure in the container. Then use a hose connected to the vacuum pump to remove anything from the mixture. It is easy to understand that the pressure in the container decreases. Close the valve and wait about 30 minutes for the mixture in the container to return to the ambient temperature. After confirming this with a thermometer, measure the pressure of the mixture with a pressure gauge. Label it P1. Measure the weight of the container and specify the new fabric as M. 6. Now, remember the universal equation of Mendereyev Clapeyron. According to him, in both cases: - PV s MRT / m'; -P1V x M1RT / m. After a little change in this equation, you will get: - m s MRT / PV; - m x M1RT / P1V. Followed by 7 m s (M - M1) RT / (P - P1) V. And m is the molar mass of the gas mixture you need to know. You can get an answer by inging to an expression with a known value. Molecular weight of the mixture Tip 2: How to find the molar mass. The molar mass of a substance, indicated as M, is a mass having one mole of a chemical substance. The molar mass is measured in kg / mole or g / mole. To determine the molar mass of the instruction 1 substance, it is necessary to know its qualitative and quantitative composition. The molar mass represented by g/mol is numerically equal to the relative molecular weight of the substance - Mr. The two-molecule mass is the mass of a material molecule, expressed in atomic mass units. Molecular weight is also called molecular weight. To find the molecular mass of a molecule, you need to add the relative mass of all the atoms that make up the molecule. 3 Relative atomic mass is the mass of the atomic mass, expressed in units of atomic mass. Atomic mass units are units of measurement of atomic mass and molecular mass, and are the most common carbon objects equal to 1/12 the mass of 12C medium atoms. 4 The atomic mass of all chemical elements present in the Earth's crust is shown in the periodic table. By adding the relative atomic mass of all elements that form chemistry or molecules, you can find the molecular weight of chemicals equal to the molar mass expressed in g / mol. 5 In addition, the molar mass of the substance is equal to the mass ratio of the substance m (during measurement)/gram) to the amount of substance (measured in moles). Since the value of the molar mass of the substance depends on its qualitative and quantitative composition, that is, defined as the sum of the relative masses of the elements that make it up, different chemicals expressed by the same number of moles have different mass m (kg or g). Tip 3: Since the mass of molecules and molecules is so small, it was decided to use these values for Dalton's proposal, comparing the mass of a molecule or atom to 1/12 of the mass of a carbon atom, instead of the mass of the molecule or the atom itself. The amount of substance containing the same number of molecules or atoms as 12 grams of carbon is called moles. The molar mass of a substance (M) is the mass of a mole. The molar mass is the scoulur mass measured in the international SI system, which is the value of kilo gamma by the mole. Instruction 1 To calculate the molar mass, it is necessary to know two amounts of m s / mV. An example, which represents the mass of the substance (m) in kilograms and replaces the amount of the substance (v) measured in moles with an expression. To do this, it is first necessary to convert the mass of water from grams to kilograms - 100 g x 0.01 kg. Next, the molar mass is calculated by replacing the value in the expression: M m / v s 0.01 kg / 3 moles x 0.003 kg / mol. 2 expression M s m / rReplace another known identity? / N / Na is the number of molecules or atoms of the substance, N is an avogadro constant equal to 6 ^ 10-23 degrees, and then the molar mass is calculated using a different formula: M s m0 \* No. That is, there is another formula for calculating the molar mass. Example 2. The mass of a material molecule is equal to 3 ^ 10 (minus 27 degrees) kg. Find the molar mass of the substance. Know the value of the constant number of avogadro and solve the equation: M x 3 ^ 10 (minus 27 degrees) kg \* 6 ^ 10 (at 23 degrees) 1 / mol s 18 ^ 10 (minus 4 degrees) kg / mole. Experience as a teacher at Council 4 2019. How to find molar concentrations. There are terms like molar concentration in the course of school chemistry. It exists in chemistry textbooks, targeting college students. To know what the mass of moles is and how to calculate it, you need both elementary school students and students who want to pass a chemical test and those who decide to choose this science as their future profession. Instruction 1 In the course of analytical chemistry experiments, samples are taken very often. Each analysis determines the amount of material consumed from among other parameters. In most cases, it is necessary to deal with concepts such as moles, quantities of substances, molar mass, concentration, etc. of analytical chemistry. The concentration of chemicals is expressed in several ways. There are concentrations of moles, masses and volumes. The molar concentration is the relationship between the amount of the substance and the volume of the solution. This concept can be found in chemistry courses 10 and 11. C(X) x n(X)/V, and n(X) are expressed as the amount of soe blend X. V is the volume of the solution. In most cases, the calculation of the molar concentration for the solution is carried out, and the solution consists of water and soy melts, so the concentration must be determined. Moles / L. L, who knows the molar concentration formula, can prepare a solution. If the molar concentration is known, the following formula is used to obtain the solution: Cb x nb / Mb = Vpp This formula calculates the mass of the substance nb and vp does not change (Vp cons). Next, a substance of a certain mass is slowly mixed with water to obtain a solution. 3. In analytical chemistry, the molar concentration and mass percentage of a substance are interconverted when solving solution problems. The wb mass percentage of the solum is the ratio of the mass nb to the mass of the solution mp: wb s mp s mb / mp. mp s mb + H2O (the solution consists of water and soe) The molar concentration is cracked by the molar weight By the density of the solution is equal to the product of the mass fraction: how to determine the concentration of .b.wb.pp.pa / Mb To determine the molar concentration of the solution, determine the amount of substance in the mole, which is the unit of volume of the solution. To do this, find the dough and chemical formula of the soe, find its amount in moles, divide by the volume of the solution. Measurements of cylinders, balances and periodic tables are required. Instruction 1 Use the exact weight to find the molten fabric in grams. Determine the chemical formula. The periodic table is then used to find atomic masses of all particles entering the molecules of the original material and add them. If there are multiple particles in the same molecule, multiply the atomic mass of the particles by a number. The resulting number is equal to the molar mass of the substance in grams per mole. The amount of the substance dissolved in the mole is determined, and the mass of the substance is determined by the molar mass. 2 Dissolve the substance in a solvent. It can be water, alcohol, ether or other liquids. Check the solution for solid particles. Pour the solution into the measuring cylinder/volume in the number of graduations of scale. Measure the volume in cm3 or milliliters. To determine the molar concentration directly, the amount of the soe is then fractioned into moles by the volume of the solution. The result is a mole per cm3. 3 If the solution is already ready, in most cases its concentration is determined by mass minutes. To calculate the molar concentration, calculate the mass of the elution. On a scale, determine the mass of the solution. The known percentage of the solution is multiplied by the mass of the solution and multiplied by 100%. For example, if we know that there is a 10% salt solution, we will multiply the solution mass by 10 and break it by 100. 4 Determine the chemical form of the elution and find its molar mass using the techniques already described. Next, divide the mass calculated by the mole and calculate the amount of molar solion. Use the measuring cylinder to find the volume of the complete solution and the amount of substance in the mole broken by this volume. The result is the molar concentration of the substance in the solution. Tip 6: How to determine nitrogen mass nitrogen is an element with atomic number 7 in the periodic table of chemical elements discovered by DJ Mendeleev. N is indicated by the symbol N and has equation N2. Under normal conditions, nitrogen is an atomic gas with a number of numbers of colorless, odorless and tasteless numbers. From this element, our earthy atmosphere consists of three-quarter. Instruction 1 Today, nitrogen is widely used in various types of production. Therefore, compounds containing this element are used in the creation of dyes, explosives, pharmaceuticals and other chemical industries. 2 Gaseal nitrogen has excellent properties that prevent decomposition, decomposition and oxidation of the material. It is used to purge various pipes to fill the tire room of cars and airplanes. In addition, nitrogen is used in the production of ammonia, special nitrogen fertilizers, coke, etc. 3 Of course, the method of finding nitrogen mass is known only to specialized chemists and physicists, and the formula shown below can infer and find the mass of this substance even for the most inexperienced students and students. Therefore, nitrogen molecules are known to have the formula N2, and the atomic mass or so-called molar mass is 14.00674a.E. m (G / mol), as a result, the paint mass of the nitrogen molecule is equal to 14.00674x2 x 28.01348, resulting in a rounding of 28. If you need to determine the mass of nitrogen molecules at 5 kilograms, this can be done as follows: 281 a. e.m 28 x 1, 6605402 (10) x 10 ^ -27 kg x 46.5 x 10^-27 kg x 438. By determining the nitrogen mass, it is possible to easily calculate formulas containing the mass of nitrogen molecules and find the necessary components in the future. In the caution industry, nitrogen is mainly used to produce ammonia, and when flammable liquids are pumped, often in metallurgical plants, to provide an inert environment in various chemical processes. Liquid nitrogen is widely used as a refrigerant and is actively used in medicine, especially in cosmetics, due to its freezing properties. Tip 7: How to find hydrogen mass Molecular weight is molecular weight, also called the mass value of the molecule. Molecular weight is expressed in units of atomic mass. Decomposing the molecular weight value in parts, it was found that the sum of the masses of all the atoms that make up the molecule was its molecular weight. When we talk about mass units, most measurements are made in grams. Instruction 1 The very concept of molecules is associated with the concept of molecules. However, this condition can not be said to apply only to substances where molecules such as hydrogen are found separately. If the molecules are not separated from other molecules, but are closely related, all of the above conditions and definitions are also valid. 2 First, determining the mass of hydrogen requires a substance that contains hydrogen and can be easily separated. It is an alcohol solution or other mixture, some of its components can, under certain conditions, change its state and easily release the solution from its presence. Heating can also combine necessary or unwanted substances. This is the easiest way. Now decide whether to evaporate a substance you don't need or whether it will be hydrogen, the molecular weight you plan to measure. If an unnecessary substance evaporates - nothing terrible, the main thing is that it is not toxic. In case of evaporation of the desired substance, the equipment should be prepared so that all evaporation is stored in the flask. 3 After separating all unnecessary objects from the composition, proceed to measurement. For this, avogadro's number will suit you. It is with your help that the relative calculation of the atomic mass and molecular mass of hydrogen is possible. Find all the necessary hydrogen parameters present in any table and determine the density of the resulting gas so that it is usefulOne of the formulas. Then replace all the results obtained and, if necessary, change the unit of measure to grams as described above. 4. The concept of molecular weight is more relevant when it comes to polymers. Given the heterogeneity of molecules, it is more important to introduce the concept of average molecular weight. Further, the average molecular weight can be determined according to the degree of polymerity of the substance. Tip 8: How to find the mass of moles. In chemistry, moles are used as unit quantiles of substances. There are three characteristics of a substance: mass, molar mass, and amount of matter. The molar mass is the mass of the mole of the substance. Instruction 1 The mole of a substance is the amount of a substance containing the same number of structural units as a 0.012 kg atom of a normal (non-radioactive) carbon isotope. Structural units of matter include molecules, atoms, ions, and electrons. When a substance with a relative atomic amount of Ar is administered under the conditions in question, depending on the formulation in question, when calculating, the mass of the same substance or its molar mass is found. The relative atomic mass of Ar is called a value equal to the ratio of the element's mean isotope mass to 1/12 of the carbon mass. 2 Both organic and inorganic substances have a molar mass. For example, calculate this parameter for H2O water and CH3 methane. First, find the molar mass of water: M(H2O)s 2Ar(H)+Ar(O)s 2\*1+16 x 18 g/mol methane is an organic gas. This means that the composition of the molecule contains hydrogen and carbon atoms. The molecules in this gas contain three hydrogen atoms and one carbon atom. Calculate the molar mass of a substance as follows: M (CH3)·Ar(C)+2Ar(H) - calculate the molar mass of other substances, as well as 12+3\*1 + 15 g/mole. 3. In addition, the mass and molar mass of the mole of the substance are found, and the mass and amount of the substance are known. In this case, the molar mass is calculated as the relationship between the mass of the substance and its amount. The formula is as follows: M s/m is the molar mass for M, mass for m, and the amount of matter. The molar mass of a substance is expressed in grams or kilograms per mole. If the mass of a molecule of a substance is known, if you know the number of avogadro, you can find the mass of the mole of the substance as follows: Mr. Na ^ma, Mr. Mr. Is a mole mass, Na is the number of avogadro, ma is the mass of the molecule. For example, if you know the mass of a carbon atom, you can find the molar mass of this substance. 6.02 \* 10 x 23 \* 1.993 \* 10 x ^-26 x 12 g / mol Council 9: How to calculate the molar concentration What is the molar concentration? How the molar mass is detected varies depending on the conditions in question. Accurate scale: Measured capacity: Salt-soluble table: Periodic table required. Instruction 1 For example, it has the task of determining what the molar concentration of the solution in 71 grams of sodium sulfate contained in a solution of 450 ml is. 2 First, enter the exact formula for sodium sulfate: Na2SO4.Na-23, S-32, O-16: Write the atomic weight of all the elements that make up the molecules of this substance. Don't forget to hang the index. The total atomic weight is: Na-46, S-32, O-64. As a result, the molecular weight of sodium sulfate is 142. 3 Divide the actual mass of sodium sulfate into moles and examine how many moles of this salt are in the solution. This is done as follows: if 71/142 x 0.5 mol.4 71 grams of sodium sulfate were contained in 1000 ml of solution, this would be a 0.5 mol solution. However, since it has 450 ml, it needs to be recalculated: 0.5 \* 1000 / 450 x 1.111 or 1.1 mole solution is rounded. The problem has been resolved. 5 Now, what if you are given an unknown amount of substance (for example, in a chemical lab), for example, a container containing an unknown amount of water and proposes to determine the molar concentration of the solution that has not yet been obtained? 6 Carefully weigh sodium chloride, preferably to accurate (laboratory, ideally analytical) balance. Record or remember the results. 7 Pour water into the measuring vessel (vessel or measuring cylinder in the laboratory) and adjust its volume and resulting mass because the water density is 1. 8 Use a salt-soluble table to ensure that all sodium chloride is dissolved in water quantities at room temperature. 9 Dissolve the salt in water and use a measuring container to adjust the exact amount of solution obtained. Calculating the molar concentration of the solution according to the formula of m \* 1000 / (M \* V), m is the actual mass of sodium chloride, M is its molar mass (about 58.5), and V is the volume of the solution in milliliters. For example, the sodium chloride mass is 12 grams, and the volume of the solution is 270 ml.12000 / (58.5 \* 270) = 0.7597. (about 0.76 mol solution). Tip 10: How to find a large mass of air. The molar mass is the mass of the mole of the substance, that is, the amount indicating how much.Substance 6,022 \*10 (up to about 23) particles (atoms, molecules, ions). What if this is not a pure substance, but a mixture of substances? How to calculate your mole mass?You will need - precise laboratory balance: Round bottom flask with thin section and faucet - Vacuum pump; Manometer with two faucets and connecting hose.Statement 1 First, think about the tolerance of the calculation. If high accuracy is not required, limit it to the three heaviest components - nitrogen, oxygen and argon - and take a rounded value of concentration. If you want more accurate results, you can use carbon dioxide for calculations and do so without rounding. 2 Let's have a happy first option. Write down the molecular weight of these components and the mass concentration in the air:- nitrogen (N2), Molecular weight 28, mass concentration 75.50%;-oxygen (A2), Molecular weight 32, mass concentration 23, 35%;-Argon (ar), Molecular weight 40, mass concentration 1.29%. 3 To facilitate calculation, round the concentration value: - nitrogen - up to 76% for oxygen; - up to 23%; - for argon - up to 1.3%. 4. Perform simple calculations: 28\*0.76+32\*0.23+40\*0.013x29.16g/mole. 5 The obtained value is very close to the value indicated in the reference book: 28.98 grams / mole. The discrepancy is due to rounding. 6. A simple laboratory experiment can be used to determine the molar mass of the air. To do this, put air and measure the mass of the flask. 7 Record the results. Next, the flask hose is connected to the pressure gauge to open the valve and with the pump turned on, it begins to discharge air from the flask. 8 Wait a little (because the air in the flask reaches room temperature), recording gauge and thermometer readings. The valve of the flask is then closed, the hose is removed from the pressure gauge, and the weight of the flask is weighed with a new (reduced) air volume. Record the results. 9 Then mendereyev Krapiroin's universal equation comes to your aid: Pvm s MRT. Write in a slightly modified shape: ΔPVM - ΔMRT, and know both the change in pneumatic ΔP and the change in air mass ΔM. The molar mass of air is calculated elementally: m s ΔMRT/Δ PV. Good advice The Mendereyev-Krapeiron equation describes the ideal gas state, but of course not air. However, at almost normal pressures and temperatures, mistakes are not very important and can be ignored. Tip 11: How to find the molar mass of oxygen. Mole mass is the most important feature of any substance, including oxygen.It is possible to calculate mole mass, chemical reactions, physical processes, etc. This value can be searched using a periodic table or an ideal gas state equation. You will need - periodic table of chemical elements; - scale; - pressure gauge; - thermometer. Instruction 1 If it is known that the gas under investigation is oxygen, determine the corresponding element in the periodic table (periodic table) of chemical elements. Find the oxygen element indicated by the Latin letter O at number 8. 2 Atomic mass is 15.9994. Since this mass is shown taking into account the presence of an object, it takes the most common oxygen atoms who have a relative atomic mass of 16. 3 Considering the fact that oxygen molecules are biatomic, the relative molecular weight of oxygen gas is 32. This is numerically equal to the molar mass of oxygen. That is, the molar mass of oxygen is equal to 32 g / mol. To convert this value to kilograms per mole, get 0.032 kg/mol, broken by 1000. 4 If it is not known exactly that the gas in question is oxygen, use the ideal gas state equation to determine its molar mass. In the absence of ultra-high, ultra-low and high pressure temperatures, oxygen can be considered the ideal gas if the agglomeration state of the substance changes. Pump air from a sealed cylinder equipped with a pressure gauge, its volume is known. Weigh the scale. 5 Fill with gas and weigh again. The difference in mass of an empty gas-filled cylinder is equal to the mass of the gas itself. Express it in grams. Use a pressure gauge to determine the gas pressure in the gas pressure in the pascals tank. The temperature is equal to the ambient temperature. Measure with a thermometer, convert to Kelvin and add 273 to the value of degrees Celsius. Calculate the molar mass of the gas by multiplying 6 m by the temperature T and the universal gas constant R (8.31). The resulting number is sequentially broken by the pressure values P and volume V (M x m + 8.31 \* T / (P\*V). The result should be close to 32 g/mol. Tip 12: How to learn moles. The mass of one mole of a substance is called its molar mass and is indicated by the letter M. The unit of measurement of the molar mass is g/mol. How you calculate this value will vary depending on the conditions you specify. Required - periodic system of chemical elements D.I. Mendereyev (periodic table); - Calculator instruction 1 If the chemical formula of a substance is known, its molar mass can be calculated using the periodic table. The molar mass (M) of a substance is equal to its relative molecular weight (Mr). To calculate it, find the atomic mass of all the elements that make up a substance in the periodic tableTypically, this number is entered in the lower-right corner of the corresponding item cell below that sequence number. For example, hydrogen has an atomic mass of 1-Ar (H) x1, oxygen has an atomic mass of 16-Ar (O) x16, and sulfur has an atomic mass of 32-Ar(S) x 32. In order to know the moles and moles of two substances, it is necessary to add the relative atomic mass of the component with the number of atoms: Mr. Ar1n1 + Ar2n2 + ... + Arnx. Therefore, the molar mass (H2O) of water is equal to the sum of the atomic mass (H) of hydrogen multiplied by 2 and the atomic mass (O) of oxygen. M (H2O)? Ar (H)?2 + Ar (O)? 172 + 16 x 18 (g / mol). The molar mass of sulfuric acid (H2SO4) is equal to the atomic mass of hydrogen (H) multiplied by 2, and the atomic mass of sulfur (S) multiplied by 4 of the atomic mass (O) of oxygen. M (H2SO4) ? Ar (H)?2 + Ar (S) + Ar (O)?4 x 172 + 32 + 1674 x 98 (g /mole). The molar mass of a simple substance consisting of elements is also taken into account. For example, the molar mass of the oxygen gas (O2) is equal to the atomic mass of the oxygen element (O) multiplied by 2. M (O2)? 1672 x 32 (g/mol). 3. If the chemical formula of the substance is unknown, but its quantity and mass are known, the molar mass can be found in the formula: M s m/n, M is the molar mass, m is the mass of the substance, n is the amount of matter. For example, two moles of the substance have a mass of 36 g, after which the molar mass is 2 mole x 18 g / mol (most likely H2O water) that is Ms / n s 36 g. If the mass of 1.5 moles of the substance is 147 g, its molar mass M s / n x 147 g? 1.5 moles x 98 grams / mole (most likely sulfuric acid H2SO4). Tip 13: Method of calculating the equivalent molar mass The equivalent molar mass indicates the mass of the mole of the substance. The uppercase letters of M.1 moles are equal to the amount (constants) of matter containing the number of particles (atoms, molecules, ions, free electrons). The number of avogadro is about 6,0221. 10 x 23 (particles). Instruction 1 To determine the molar mass of a substance, the mass of a particular substance is multiplied by the number of avogadro: M s m (1 molecule) N (A.2) The molar mass has a dimension [g / mol]. Therefore, write down the results in these units. 3 The molar mass is numerically equal to its relative molecular weight. The relative molecular weight of the substance is written as M (r). Displays the ratio of the mass of a material molecule to 1/12 of the atomic mass of a carbon object (atomic number 12). 4 1/12(12) of the mass of a carbon is the mass of a carbon-ishyst atom- 1 small: 1 am x 1/12 m (C) = 1.6605710 x (-27) kg = 1.6605710 x (-24) gS Relative molecular weight must be understood to be an undying quantity, so signs of eness may be placed between the molar mass. 6 Refer to the D.I. Mendereyev Chemical Element Table to see the molar mass of individual elements. The molar mass of an element is usually equal to the relative mass of the atoms of this element shown at the bottom of each cell. Hydrogen has an atomic mass of 1, such as helium-4, lithium-7, beryllium-9, and the like. If the task does not require high accuracy, take the value of the rounded mass. 7 For example, the molar mass of the oxygen element is about 16 (in the table, this can be written as 15.9994). 8 If it is necessary to calculate the molar mass of a simple gaseous substance who has two atoms (O2, H2, N2), then multiply the atomic mass of the element by 2: M (H2) x 1.2 x 2 (g / mol) M (N2) ? 142 x 23 (g/mol) 9 The molar mass of the composite consists of the molar mass of each component. In this case, the atomic number seen in the periodic table is multiplied by the corresponding index of the element in the material. For example, water has formula H (2) O. Molar mass of hydrogen in the composition of water: M (H2) x 2 (g/mol), molar mass of oxygen in the composition of water: M (O) x 16 (g /mol), molar mass of the entire water molecule: M(H2O)s2+16 x 18 (g/mol). 11 Sodium bicarbonate (gase gasely beverage) has a NaHCO3 (3) formula. M (Na) x 23 (g /mole); M (H) x 1 (g /mole); M (O) x 12 (g /mole); M (O3) ? 163 x 48 (g / mol); M (NaHCO3)? 23 + 1 + 12 + 48 x 84 (g / mol). Tip 14: How to calculate the molar concentration The molar concentration is a value indicating how many moles of the substance are in the first liter of the solution. For example, it is known that exactly 58.5 grams of sodium chloride salt are contained in a liter of solution. Since the mole of this substance is only 58.5 g / mole, in this case it can be said that there is a salt solution of moles. (Or, in the form of registration, Solution 1M). Will be needed - substance solubility table. Instruction 1 The solution to this problem will vary depending on the specific conditions. If you know the exact mass of the substance and the exact volume of the solution, the solution is very simple. For example, 15 grams of barium chloride are contained in a solution of 400 ml. What is your mole concentration?? Start by remembering the exact formula of this salt: BaCl2. According to the periodic table, determine the atomic mass of the elements that make it up. And considering index 2 in chlorine, get molecular weight: 137 + 71 x 208. ByThe molar mass of barium chloride is 208 g/mol. 3. Contains 15 grams of this substance, depending on the conditions in question. How much is this in a mole?If you split 15 by 208, it will be about 0.072 moles. 4. Now you need to consider the amount of solution per liter, only 0.4. If you split 0.072 by 0.4, the answer is returned: 0.18. That is, it has around a mole solution of barium chloride 0.18. 5. Complicate the solution to the little problem. Let's take the aforementioned well-known sodium chloride salt to begin dissolving in 100 milliliters of water at room temperature. He added it to a small part, carefully stirred and waited until completely dissolved. And now it has come time that the next small part did not completely dissolve, despite intensive mixing. 6 First, you need to find a solubility table of substances. Since it is listed in most chemical references, you can also find data on the Internet. At room temperature, it is easy to determine that the saturation limit (i.e. solubility limit) of sodium chloride is 31, 6 grams / 100 grams of water. 7 Under the conditions in question, it dissolved salt in 100 ml of water, but its density is almost equal to 1. Conclusion: The resulting solution contains about 31.6 grams of sodium chloride. A small amount of unsolubility excess, as well as changes in volume during salt melting, can be ignored, and the error is small. 8 As a result, 1 liter of solution will contain 10 times more salt - 316 grams. The molar mass of sodium chloride, as first mentioned, is 58.5 g / mol, so you can easily find the answer: 316 / 58.5 x 5, 4 mole solutions. Method of calculation of the mole concentration council 15: how to calculate the molar mass of the molar mass of the substance, i.e. the molar mass of a substance with 6,02210 x 23 elementary particles (atoms, ions or molecules). The unit of measure is gram/mole. Instruction 1 To calculate the molar mass, only a periodic table, basic knowledge of chemistry, and computing power are required. For example, a well-known substance is sulfuric acid. It is widely used in some industries where it is correctly called blood chemistry. What is your molecular weight?2 Enter the exact formula of sulfuric acid: H2SO4. Now, take the periodic table and see what the atomic mass of all the elements that make it up is. Three elements: hydrogen, sulfur and oxygen. atomic mass of1, sulfur is 32, oxygen is 16. Therefore, the total molecular weight of sulfuric acid is 1 \*2 + 32 + 16 \* 4 x 98 amu (atomic mass unit), taking into account the indicator. 3 And now let us remember another definition of moles; this is the amount of matter who is numerically equal to that mass, in which the mass of a gram is represented in atomic units. Therefore, it was found that one mole of sulfuric acid weighed 98 grams. It is its molar fabric. The problem has been resolved. 4 Assume that these conditions are given: there are 800 ml of solution of 0, 2 moles (0, 2 M) of some salt, and we know that this salt weighs 25 grams when dry. It is necessary to calculate the molar mass. 5 First, remember the definition of a 1 mole (1 M) solution. The solution contains 1 mole of 1 liter of the substance. Therefore, in 1 liter of 0.2 M solution will contain 0.2 moles of the substance. But you do not have 1 liter, 0, 8 liters. So, in fact, it has 0.8 \* 0.2 x 0.16 moles of the substance. 6 And everything will be easier. If 25 grams of salt is 0.16 moles depending on the conditions in question, how much is equal to a sentence? By doing calculations in the action, you can find: 25 / 0.16 x 156.25 grams. The molar mass of salt is 156.25 grams / mole. The problem has been resolved. 7 The calculation used a rounded value of the atomic weight of hydrogen, sulfur, and oxygen. If the calculations are very accurate, they cannot be rounded. Calculate salt molar mass equivalent molar mass

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