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How to find percent abundance

You have a pile of rocks to move around and you need to decide which equipment you want to rent to move them. If the rocks are quite small, you can get a shovel to pick them up. Larger rocks could be hand-moved, but large rocks will need some kind of mechanical scoop. The amount of each type of rock will also determine how long it will take to get the job done. Knowing the relative amounts of large, medium and small rocks can be very useful in deciding how to approach work. Most elements are naturally produced as a mixture of two or more isotopes. The following table shows the natural isotopes of various elements, along with the percentage of natural abundance of each. Element Isotope (Symbol) Percentage of Natural Abundance Atomic Mass ('left('text''amu'') Average Atomic Mass '('left('text' Table '{1}'1H-) 99.985 1.0078 1.0079 ('ce'_1'2H') 0.015 2,0141 '('ce'_1'3H') 3.3.3H') 016 carbon á('ce'_6'{12}C') 98.89 12,000 12,011 '('ce'_6''{13}C') 1.11 11 13,003 '('ce'',[_6-{14}C-) traces 14,003 Oxygen 99,759 15,995 15,999 ?(' ce'_{16} 8'') 99,759 15,995 15,999 '('ce'_8''{17}O') 0.037 16,995 ('ce'_8''{18}O') 0.204 17,999 Chlorine ? ('ce'_{18}') 0.204 17,999 Chlorine ? ('ce'_{17}'<>-{35}Cl) 75.77 34,969 35,453 á('ce'_{17}'{38}Cl') 24.4 23 36,966 Copper 69.17 62,930 63,546 ('ce'_{29} {63}') 69.17 62,930 63,546 '('ce'_{29}''{65}') 30.83 64.928 For some elements, one is a particular ispeoto predominates greatly over the other isotopes. Natural hydrogen is almost all hydrogen-1 and natural oxygen is almost all oxygen-16. For many other elements, however, more than one isotope can exist in more substantial amounts. Chlorine (atomic number 17) is a toxic yellowish-green gas. About three-quarters of all chlorine atoms have 18 neutrons, giving those atoms a mass number of 35. About a quarter of all chlorine atoms have 20 neutrons, giving those atoms a mass number of 37. If you simply calculated the arithmetic average of the precise atomic masses, you would get 36. ['frac'left(34.969 + 36,966'{2}''35.968': 'text''' Clearly the actual mean atomic mass of the last column of the table is significantly smaller. We need to take into account the percentage of natural abundances of each isotope to calculate what is called the weighted average. The atomic mass of an element is the weighted average of the atomic masses of the natural isotopes of that element. The following sample problem shows how to calculate the atomic mass of chlorine. Example of the PageIndex{1}) Class Use the atomic masses of each of the two chlorine isotopes along with their percentage of natural abundances to calculate the average atomic mass of chlorine. Step 1 of the solution: list known and unknown amounts and plan the problem. Known chlorine-35: atomic mass (34,969 euros: text and percentage of abundance) and percentage of abundance 75.77o%) Chlorine-37: Atomic mass of 36,966o: text and percentage of abundance (24.23 euros) Unknown mean atomic mass of chlorine Changes each percentage of abundance in decimal form dividing by 100. Multiply this value by the atomic mass of that isotope. Sum for each isotope to get the average atomic mass. Step 2: Calculate the value of times 34,969 to 26.50 of the calculation page of the series text page from 34,969 to 34,969 times to 36.50 times, text, 37, 3423, times 36,966, 8.96, 8.96, 8,966, 8.96, 8,966, 8,966, 8,966, 8,966, 8,966, 8,966 6 , 8,966 , 8,966 , 8,966