

HW2

What should we remember from Chemistry 1:

- Each proton and neutron weighs approximately 1 AMU.
- An atomic mass unit (AMU) is defined as exactly one-twelfth the mass of a carbon-12 (^{12}C) atom. By definition, the mass of a common carbon atom is exactly 12.000000 AMU.
- All atomic weights can be found in the periodic table. Knowing these values, we can calculate the molecular weights of all compounds. Some compounds are called ionic (atoms are bound by ionic bonds); examples include NaOH and NaCl.

Reminder: ions can be polyatomic. Here are some examples:

Acetate	$\text{C}_2\text{H}_3\text{O}_2^-$	Sulfite	SO_3^{2-}
Ammonium	NH_4^+	Sulfate	SO_4^{2-}
Carbonate	CO_3^{2-}	Phosphite	PO_3^{3-}
Hypochlorite	ClO^-	Phosphate	PO_4^{3-}
Chlorite	ClO_2^-	Permanganate	MnO_4^-
Perchlorate	ClO_4^-	Iodate	IO_3^-
Nitrite	NO_2^-	Hydrogen carbonate	HCO_3^-
Nitrate	NO_3^-		

Question:

We have a substance, X, with an ionic bond. The mass of the positive ion in the substance is approximately 1 AMU greater than the mass of the negative ion. One of the elements in the positive and negative ions is the same. This substance is capable of reacting with acids. Can you provide the name of this substance?