

6. An acid commonly used in the automotive industry is shown to be 31.6% phosphorous, 3.1% hydrogen, and 63.5% oxygen. Determine the empirical formula of this acid.
7. A solvent is found to be 50.0% oxygen, 37.5% carbon, and 12.5% hydrogen. What is the empirical formula of this solvent.
8. A particular sugar is determined to have the following composition: 40.0% carbon, 6.7% hydrogen, and 53.5% oxygen. Determine the empirical formula of this sugar molecule.
9. If the molar mass of the sugar in question #8 is 180.0 g, find the molecular formula of the sugar.
10. Ethene, a gas used extensively in preparing plastics and other polymers, has a composition of 85.7% carbon and 14.3% hydrogen. Its molar mass is 28 g. Find the molecular formula for ethane.

Answers:

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| 1. Na_2SO_3 | 6. H_3PO_4 |
| 2. Fe_2S_3 | 7. CH_4O (actually, CH_3OH , which is methanol) |
| 3. K_2CrO_4 | 8. CH_2O |
| 4. N_2O_5 | 9. $\text{C}_6\text{H}_{12}\text{O}_6$ |
| 5. N_2O_4 | 10. C_2H_4 |