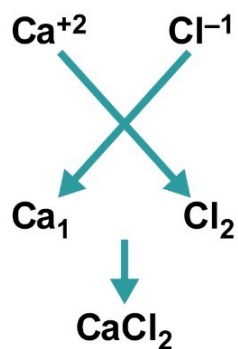


Chem 120 - Week 2 Edapt Notes

Concepts | Understanding the Structure and Naming of Molecules

Mod 1: Ionic Compounds	
Ionic Compounds: Charge Balance	<p>The total charge in an ionic compound's chemical formula always balances out to zero.</p> <p>This is the golden rule of ionic compounds. If the charges in an ionic compound are not balanced, the compound will not form, as it will be unstable. As another example, in CaO, the +2 charge of the Ca^{2+} cation balances out the -2 charge of the O^{2-} anion, giving a net (total) charge of zero.</p>
Naming Simple Ionic Compounds	<p>Ionic compounds are actually easy to name!</p> <p>Element name of the cation + element name of the anion with the ~ide suffix.</p> <p>For example, let us take a look at LiBr.</p> <ul style="list-style-type: none">• Li is the metal cation, so we use the element name lithium.• Br is the nonmetal anion, so we use the element name with the suffix replaced with ~ide. So, bromine becomes bromide.• The name of the compound is lithium bromide. <p>Because the charges always balance, we do not need to do anything with the numbers when naming an ionic compound. Because the charges always balance, we do not need to do anything with the formula subscripts when naming an ionic compound. For example, CaBr_2 is calcium bromide.</p>
Determining the Chemical Formula of Simple Ionic Compounds	<p>We will now explore how to determine the chemical formula of an ionic compound from the name of an ionic compound. We will be learning the crossover method, which depends on the fact that the charges on an ionic compound must cancel out. This method is illustrated for calcium chloride as shown in the image.</p>



Note:

- The reason this works is that the charges must balance out to zero.
- If the charges on your anions balance before you cross, do not use this method. For example, calcium oxide, made of Ca^{2+} and O^{2-} , is CaO and not Ca_2O_2 .

Polyatomic ion

To name ionic compounds with polyatomic ions as part of the structure, the key concept to remember is that polyatomic ions keep their name

To name ionic compounds with polyatomic ions as part of the structure, the key concept to remember is that **polyatomic ions keep their name**. For example, in MgSO_4 , the sulfate (**sulfate**) keeps the name sulfate, even when it is the anion. The name of this compound is