Answer on the question #64402, Chemistry / Other

Question:

Determine the chemical formula of the following compound from the valencies of the individual atoms
Sodium chloride(Na=+1, Cl=-1)
Aluminium tetraoxosulphte (VI) (AL=-3, SO4=-2)

Answer:

In writing the formula of a compound the total valence from the first, or positive part of the compound, must be equal but opposite in sign to the total valence of the second, or negative part of the compound. The total valence of an element in a compound is found by multiplying the valence of the element by the number of atoms of this element in the compound.

Sodium chloride:

$+1 = (-1)\cdot(-1)$

NaCl

Aluminium tetraoxosulphate (VI):

$+3\cdot(x) = (-1)\cdot(-2)$
$x = 2/3$, so the empirical number of atoms for Al is 2, and empirical number of tetraoxosulphate is 3:

$Al_2(SO_4)_3$