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Chemical Formula of a Molecule

Given and Introduction:

Given is an image of a molecular structure with a key to identify the elements involved. The task is to determine the chemical formula of the molecule presented in the image.

Black: Carbon
White: Hydrogen
Green: Chlorine

Step 1: Identify the atoms in the molecular structure

Supporting Statement: It is essential to analyze the molecular structure step-by-step using the color key provided to identify each element.

Explanation:

There are 2 carbon atoms (black).
There are 4 hydrogen atoms (white).
There is 1 chlorine atom (green).

Step 2: Count the total number of each type of atom in the molecule

Supporting Statement: Accurate counting of each type of atom is vital for determining the correct chemical formula.

Explanation:

Carbon (C): 2 atoms
Hydrogen (H): 4 atoms
Chlorine (Cl): 1 atom

Step 3: Write the chemical formula using the counted atoms

Supporting Statement: The chemical formula represents the composition of the molecule using element symbols and their respective quantities.

Explanation: Using the counted numbers of each element:

The chemical formula is C_2H_4Cl.

Final Solution Step:

Final Explanation:

The chemical formula for the given molecular structure, considering there are 2 carbon atoms, 4 hydrogen atoms, and 1 chlorine atom, is C_2H_4Cl.

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