

Naming Covalent Compounds Worksheet

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Part 1: Foundational Knowledge

What is the primary characteristic of covalent compounds?

Hint: Think about how these compounds are formed.

- A) High melting points
- C) Formed by sharing electrons
- D) Composed of metals and nonmetals
- C) Conduct electricity in solution

Which of the following are prefixes used in naming covalent compounds? (Select all that apply)

Hint: Consider the common prefixes for numbers.

- A) Mono-
- C) Tri-
- D) Quad-
- C) Di-

Explain why the prefix "mono-" is typically omitted for the first element in a covalent compound name.

Hint: Think about the conventions in chemical nomenclature.

List the prefixes for the numbers 4, 5, and 6 used in naming covalent compounds.

Hint: Recall the common prefixes for these numbers.

1. Prefix for 4:

2. Prefix for 5:

3. Prefix for 6:

Part 2: Understanding and Interpretation

In the compound N_2O_5 , what does the prefix "di-" indicate?

Hint: Consider the number of nitrogen atoms in the formula.

- A) Two nitrogen atoms
- C) Two oxygen atoms
- D) Five nitrogen atoms
- C) Five oxygen atoms

Which of the following statements are true about the naming of covalent compounds? (Select all that apply)

Hint: Think about the rules of nomenclature.

- A) The first element's name is always prefixed with "mono-".
- C) Prefixes indicate the number of atoms.
- D) Elements are named in alphabetical order.
- C) The second element's name ends with "-ide".

Describe the role of the suffix "-ide" in the naming of covalent compounds.

Hint: Consider how this suffix is used in chemical nomenclature.

Part 3: Applying Knowledge

What is the correct name for the compound SF_6 ?

Hint: Think about the number of sulfur and fluorine atoms.

- A) Sulfur hexafluoride
- C) Monosulfur hexafluoride
- D) Sulfur pentafluoride
- C) Sulfur fluoride

Which of the following are correctly named covalent compounds? (Select all that apply)

Hint: Consider the rules of nomenclature for covalent compounds.

- A) CO - Carbon monoxide
- C) NO_2 - Nitrogen dioxide
- D) PCl_5 - Phosphorus pentachloride
- C) H_2O - Dihydrogen monoxide

Given the compound Cl_2O_7 , provide its correct covalent name.

Hint: Think about the number of chlorine and oxygen atoms.

Part 4: Analyzing Relationships

If a compound is named dinitrogen tetroxide, what is its chemical formula?

Hint: Consider the prefixes used in the name.

- A) N_2O_4
- C) NO_2
- D) N_4O_2
- C) NO_4

Analyze the following names and identify which are incorrectly named covalent compounds. (Select all that apply)

Hint: Consider the rules of nomenclature for covalent compounds.

- A) Dihydrogen monoxide
- C) Trinitrogen hexoxide
- D) Monocarbon dioxide
- C) Carbon tetrachloride

Analyze the compound name "tetraphosphorus decoxide" and explain any errors or confirm its correctness.

Hint: Consider the number of phosphorus and oxygen atoms indicated by the name.

Part 5: Synthesis and Reflection

Evaluate the following statement: "The compound CO_2 is named carbon dioxide because it contains two carbon atoms." Is this statement correct?

Hint: Think about the number of carbon atoms in the formula.

- A) True

- C) False
- D) Maybe
- C) Uncertain

Create a correct name for the compound with the formula P_4S_{10} . (Select all that apply)

Hint: Consider the number of phosphorus and sulfur atoms.

- A) Tetraphosphorus decasulfide
- C) Phosphorus sulfide
- D) Phosphorus decasulfide
- C) Tetraphosphorus sulfide

Propose a name for a new covalent compound with the formula Si_2Br_6 , and justify your naming choice based on the rules of covalent compound nomenclature.

Hint: Think about the number of silicon and bromine atoms.