

Naming Covalent Compounds Worksheet Answer Key PDF

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Part 1: Foundational Knowledge

What is the primary characteristic of covalent compounds?

undefined. A) High melting points

undefined. C) Formed by sharing electrons ✓

undefined. D) Composed of metals and nonmetals

undefined. C) Conduct electricity in solution

Covalent compounds are primarily characterized by the sharing of electrons between atoms.

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

undefined. A) Mono- ✓

undefined. C) Tri- ✓

undefined. D) Quad- ✓

undefined. C) Di- ✓

Prefixes such as mono-, di-, and tri- are commonly used in naming covalent compounds.

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

The prefix 'mono-' is omitted for the first element to simplify the name, as it is understood that there is one atom present.

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

1. Prefix for 4:

tetra-

2. Prefix for 5:

pent-

3. Prefix for 6:

hexa-

The prefixes for 4, 5, and 6 are tetra-, penta-, and hexa-, respectively.

Part 2: Understanding and Interpretation

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

undefined. A) Two nitrogen atoms ✓

undefined. C) Two oxygen atoms

undefined. D) Five nitrogen atoms

undefined. C) Five oxygen atoms

The prefix 'di-' indicates that there are two nitrogen atoms in the compound N_2O_5 .

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

undefined. A) The first element's name is always prefixed with "mono-".

undefined. C) Prefixes indicate the number of atoms. ✓

undefined. D) Elements are named in alphabetical order.

undefined. C) The second element's name ends with "-ide". ✓

The true statements include that the second element's name ends with '-ide' and that prefixes indicate the number of atoms.

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

The suffix '-ide' is used to indicate that the element is a nonmetal and is the second element in the compound, reflecting its status as part of a covalent bond.

Part 3: Applying Knowledge

What is the correct name for the compound SF₆?

undefined. **A) Sulfur hexafluoride ✓**

undefined. C) Monosulfur hexafluoride

undefined. D) Sulfur pentafluoride

undefined. C) Sulfur fluoride

The correct name for SF₆ is sulfur hexafluoride, indicating one sulfur atom and six fluorine atoms.

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

undefined. **A) CO - Carbon monoxide ✓**

undefined. **C) NO₂ - Nitrogen dioxide ✓**

undefined. **D) PCl₅ - Phosphorus pentachloride ✓**

undefined. **C) H₂O - Dihydrogen monoxide ✓**

The correctly named covalent compounds include carbon monoxide, dihydrogen monoxide, nitrogen dioxide, and phosphorus pentachloride.

Given the compound Cl₂O₇, provide its correct covalent name.

The correct covalent name for Cl₂O₇ is dichlorine heptoxide, indicating two chlorine atoms and seven oxygen atoms.

Part 4: Analyzing Relationships

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

undefined. **A) N₂O₄ ✓**

undefined. C) NO₂

undefined. D) N₄O₂

undefined. C) NO₄

The chemical formula for dinitrogen tetroxide is N₂O₄, indicating two nitrogen atoms and four oxygen atoms.

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

undefined. A) Dihydrogen monoxide

undefined. C) Trinitrogen hexoxide ✓

undefined. D) Monocarbon dioxide ✓

undefined. C) Carbon tetrachloride

The incorrectly named covalent compounds include trinitrogen hexoxide and monocarbon dioxide.

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

The name 'tetraphosphorus decoxide' is correct, indicating four phosphorus atoms and ten oxygen atoms.

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?

undefined. A) True

undefined. C) False ✓

undefined. D) Maybe

undefined. C) Uncertain

The statement is false; CO_2 contains one carbon atom and two oxygen atoms.

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

undefined. A) Tetraphosphorus decasulfide ✓

undefined. C) Phosphorus sulfide

undefined. D) Phosphorus decasulfide

undefined. C) Tetraphosphorus sulfide

The correct names for P_4S_{10} include tetraphosphorus decasulfide.

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.

The proposed name for Si_2Br_6 is disilicon hexabromide, indicating two silicon atoms and six bromine atoms.