



CHE1031 Lewis Dot Structure Worksheet

Steps for writing Lewis dot structures:

1. Sum all valence electrons for all atoms in the structure, including charge.
2. Write atomic symbols and connect each with one line. Single atoms are central and repeated atoms surround the center.
3. Complete the octets of peripheral atoms (those connected to the central atom).
4. Place any leftover valence electrons on the central atom.
5. If there are not enough valence electrons to complete the central octet, use some electron pairs to create multiple bonds to the central atom.

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For each of the molecules or ions in both section below:

- a. Write Lewis dot structures for these molecules or ions;
- b. Calculate formal charges for each atom; and
- c. Identify the most polar bond.

No resonance [Are any of these exceptions to the octet rule? If so, which type?]

1. SiH₄
2. NO₂
3. SF₂
4. SO₂(OH)₂ [S in the center; an O E & W; a OH N & S]
5. ClO₂⁻¹
6. CH₂O
7. ICl₄⁻¹
8. H₂O₂
9. C₂F₆
10. AsO₃⁻³
11. SO(OH)₂ [S in the center; an O N; a OH E & W]
12. C₂H₂
13. BH₃
14. POCl₃ [P in the center]
15. ClO₄⁻¹
16. ClO₂(OH) [Cl in the center; an O E & W; a OH S]

Resonance?? If so, **add** all resonance structures and the resonance hybrid.

17. NO₂⁻¹
18. CO
19. CO₂
20. CO₃⁻²
21. NO⁺¹
22. NO₃⁻¹