CHEM 261

Resonance Structures: Different drawings of the same molecule made by moving electrons but not atoms

- Move the electrons, keeping the position of the atoms same
- Maintain inert gas configuration around each atom
- Avoid separation of charges
- Avoid like-charges on adjacent atoms
- Double headed arrow (+) is used indicate resonance forms
- Fish Hook and double headed arrows are used to show electron movement



Double Headed Arrow Show movement of 2e⁻ Fish Hook Arrow Show movement of 1e⁻

Examples

1. Hydrogen gas, H₂



NB: In the bad representations, non- inert gas configuration and extra charges have been created

2. Sodium Nitrite Anion, NaNO₂



3. Sodium Nitrate, NaNO₃



NB: No inert gas configuration disrupted No extra charge created

1. CH₄ Methane – below are POOR resonance structures – additional charges or unshared electrons (not inert gas configuration)

H-Ċ-

H

Θ

.. Н

C 🕀

≻ H-

but methyl cation – can be a reactive intermediate in principle

5. 1,2-Dichlorobenzene



