

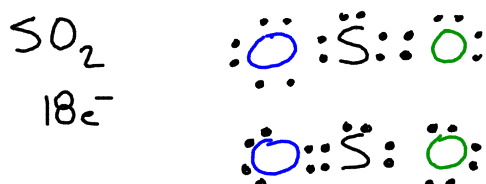
Ch 8 HW: Sec Asses 17, 18, 21, 22 Rec Con 46, 48, 50-52
Sec 8.2B

obj: Describe and give examples of resonance structures and exceptions to the octet rule.

Resonance

- A molecule has resonance if two or more valid Lewis dot structures can be written.
- 3 atom molecules which have multiple bonds have resonance.

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* SO_2 is also known as a diamagnetic substance.

* All atoms have an octet number of electrons.

* Diamagnetic if there are an even number of total valence electrons.

Exceptions to the Octet Rule

- Some molecules end up w/ a Lewis dot structure that does not have 8 electrons about the central atom.

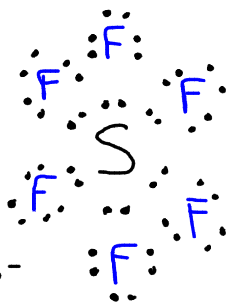
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 $17e^-$

- NO_2 is a paramagnetic compound.
- * Shows magnetic properties.
- * Odd number of total valence electrons.
- Some molecules extend the octet rule which means an atom (central atom) will have more than 8 electrons.



$$\begin{array}{r} 7 \\ \times 6 \\ \hline 42 + 6 = 48e^- \end{array}$$



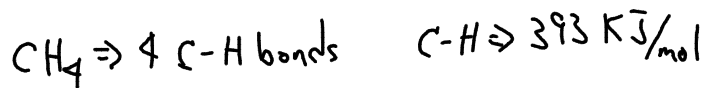
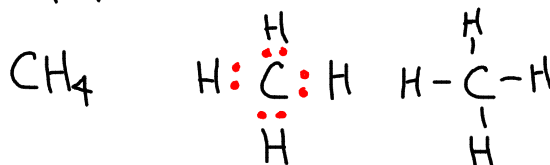
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Bond dissociation Energies

- The energy needed to break a covalent bond btw two atoms.



Find the total energy needed to separate a methane molecule into its atoms.



$$4(393 \text{ kJ/mol}) = 1572 \text{ kJ/mol}$$

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