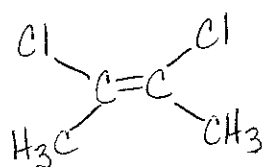


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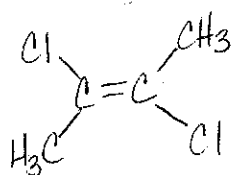
CHM 123Lecture Notes

isomers

- structures containing the same atoms but differing connectivities

ex.  $\text{H}-\text{C}\equiv\text{N}$   $\overline{\text{or}}$   $\text{H}-\text{N}\equiv\text{C}$ 

cis (same)

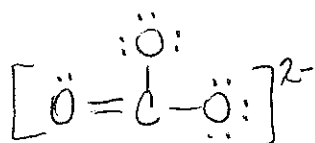
 $\overline{\text{or}}$ 

trans (opposite)

Exceptions to the Octet Rule

- odd number of electrons; ex.  $\text{:}\ddot{\text{N}}=\ddot{\text{O}}\text{:}$ - expanded valence; ex.  $\begin{array}{c} \text{:}\ddot{\text{Cl}}\text{:} \\ | \\ \text{:}\ddot{\text{Cl}}\text{:}-\text{P}-\text{:}\ddot{\text{Cl}}\text{:} \\ | \\ \text{:}\ddot{\text{Cl}}\text{:} \end{array}$ - electron deficient; ex.  $\begin{array}{c} \text{H} \\ | \\ \text{H}-\text{B}-\text{H} \end{array}$ Example  $\text{CO}_3^{2-}$ 
 $\begin{array}{l} \rightarrow \text{Have: } 24 \text{ valence } e^- \\ \rightarrow \text{Need: } 32 e^- \end{array}$ 


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 $\begin{array}{l} 8 \text{ shared } e^- \\ = 4 \text{ bonds} \end{array}$ 


one resonance structure