

Vocab Review

- **Ionic Compounds** – contain ionic bonds formed by a transfer of electrons between atoms, metal and nonmetal
- **Covalent Compounds** – contain covalent bonds formed by sharing electrons between atoms, 2 or more nonmetals

Apr 8-7:43 AM

Polar vs. Nonpolar

- **Polar Covalent Molecule**- one in which the molecule is *asymmetrical* and causes the centers of the positive and negative poles (dipoles) to not align.
 - > Results in a partial positive charge and partial negative charge on the molecule
- **Nonpolar Covalent Molecule**- one in which the molecule is *symmetrical* which causes the centers of the positive and negative poles (dipoles) to align.

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Determining Polarity

- Use Lewis structures!
- Have to draw the molecules to determine symmetry
 - Symmetrical molecules = nonpolar covalent
 - r All terminal (end) atoms must be the same
 - r Usually no lone pairs on the central atom
 - Asymmetrical molecules = polar covalent
 - r All terminal (end) atoms may not be the same
 - r Usually lone pairs present on the central atom

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Practice: Polar or nonpolar

- HBr

ANSWERS ON NEXT SLIDE!

- CO₂

- H₂Se

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Practice: Polar or nonpolar

- HBr
 - $1+7 = \frac{8}{2} = 4 \text{ pairs}$ $\text{H}-\ddot{\text{Br}}:$
 - asym.
 - Polar Cov.
 - Will dissolve in H₂O
- CO₂
 - $4+2(6) = \frac{16}{2} = 8 \text{ pairs}$ $:\text{O}=\text{C}=\text{O}:$
 - symm.
 - nonpol. cov.
 - Will NOT dissolve in H₂O
- H₂Se
 - $2(1)+6 = \frac{8}{2} = 4 \text{ pairs}$
 - $\text{H}-\ddot{\text{Se}}-\text{H}$
 - asymm (lone pairs on central atom)
 - Polar Cov.
 - Will dissolve in H₂O

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Practice: Polar or nonpolar

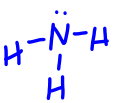
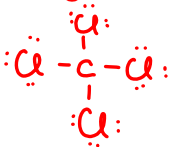
- NH₃

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- CCl₄

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Practice: Polar or nonpolar

- NH_3
 $5 + 3(1) = \frac{8}{2} = 4 \text{ pairs}$

 - asymm. (lone pairs on central atom)
 - Polar cov.
 - Will dissol. in H_2O
- CCl_4
 $4 + 4(7) = \frac{32}{2} = 16 \text{ pairs}$

 - symm.
 - Nonpolar
 - Will not dissolve in H_2O

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Check for understanding:

- Decide whether each of the following molecules is polar or nonpolar:

 PCl_3

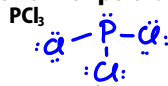
ANSWERS ON NEXT SLIDE!

 H_2S CF_4 CS_2

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Check for understanding:

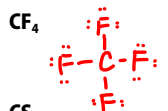
- Decide whether each of the following molecules is polar or nonpolar:



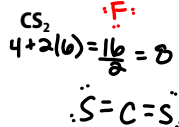
- asym (lone pairs on central atom)
- Polar covalent
- dissolves in H_2O



- asymm (lone pairs on central atom)
- Polar covalent atom
- dissolves in H_2O



- symm.
- nonpolar covalent
- will not dissolve in H_2O



- symm.
- nonpolar covalent
- will not dissolve in H_2O

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Attachments

solutionSalt.zip

clipboard(20615).galleryitem