

Polarity and Intermolecular Forces

Complete the following logic statements using arrows

1) _____ Polarity \therefore _____ IMF's \therefore  Boiling Point

2)  Polarity \therefore _____ IMF's \therefore _____ Boiling Point

3) _____ Polarity \therefore _____ IMF's \therefore  Boiling Point

4) _____ Polarity \therefore  IMF's \therefore _____ Boiling Point

5)  Polarity \therefore _____ IMF's \therefore _____ Boiling Point

6) _____ Polarity \therefore _____ IMF's \therefore  Volatility

7)  Polarity \therefore _____ IMF's \therefore _____ Volatility

8) _____ Polarity \therefore  IMF's \therefore _____ Volatility

9) _____ Polarity \therefore _____ IMF's \therefore  Volatility

10)  Polarity \therefore _____ IMF's \therefore _____ Volatility

11) _____ Polarity \therefore _____ IMF's \therefore  Cohesive Forces

12) _____ Polarity \therefore  IMF's \therefore _____ Cohesive Forces

13) _____ Polarity \therefore _____ IMF's \therefore  Cohesive Forces

14) _____ Polarity \therefore  IMF's \therefore _____ Cohesive Forces

15)  Polarity \therefore _____ IMF's \therefore _____ Cohesive Forces

For each of the following compounds, draw both LDMS and indicate the molecular polarity. Then, circle the more polar molecule and briefly explain your reasoning.

1) Methyl chloride (CHCl_3) or methyl bromide (CHBr_3)

2) Water or hydrogen sulfide (H_2S)

3) Hydrochloric acid (HCl) or hydroiodic acid (HI)

4) Bromoacetylene (C_2HBr) or chloroacetylene (C_2HCl)

5) Methanol (CH_3OH) or diethyl ether [$(\text{CH}_3)_2\text{O}$]

6) Acetone [$(\text{CH}_3)_2\text{CO}$] or propanol ($\text{C}_3\text{H}_8\text{O}$)

Regarding the molecules you just drew, answer the following questions, including a brief description of your reasoning.

1) Regarding set 1, which will exhibit stronger cohesive forces?

2) Regarding set 2, which will evaporate more readily?

3) Regarding set 6, which will boil at a lower temperature?

4) Regarding set 5, which will have stronger intermolecular forces?

5) Regarding set 5, which will least likely evaporate and therefore be a liquid?

6) Regarding set 4, which will be more volatile?

7) Regarding set 3, which will have a higher boiling point?

8) Regarding set 2, which will boil at a lower temperature?

9) Regarding set 6, which will be less volatile?

10) Regarding set 2, which will exhibit weaker cohesive forces