

Compound	$\begin{array}{c} \text{O} \\ \parallel \\ \text{H}_3\text{C}-\text{C}-\text{OH} \end{array}$ ethanoic acid (acetic acid)	$\begin{array}{c} \text{O} \\ \parallel \\ \text{H}_3\text{C}-\text{C}-\text{CH}_3 \end{array}$ propanone (acetone)
Which intermolecular forces present? (Dispersion, dipole-dipole, H-bonding)	Dispersion, dipole-dipole, H-bonding	Dispersion, dipole-dipole
Explanation:	H-bonding only occurs between molecules when an H is directly attached to an N, O, or F. In acetone, all the H's are attached to C.	
Strongest IMF present?	H-bonding	dipole-dipole probably
Explanation:	H-bonding is the strongest of all the IMFs. For small molecules, dipole-dipole forces are stronger than dispersion forces.	
Overall strength of IMF (stronger/weaker)	stronger	weaker
Explanation:	H-bonding is the strongest of all the IMFs.	
Viscosity (higher/lower)	higher	lower
Explanation:	Compounds with stronger IMFs will have molecules which are less free to move and the substance will be more viscous.	
Boiling point (higher/lower)	higher	lower
Explanation:	Compounds with stronger IMFs are held more tightly next to each other, and require more heat to separate the molecules and boil.	
Evaporation rate (faster/slower)	slower	faster
Explanation:	Acetone evaporates faster because its molecules are held less tightly next to each other – more of them already have the required amount of energy to vaporize.	
Vapor pressure (higher/lower)	lower	higher
Explanation:	Acetic acid has strong IMFs, so it will have fewer gas molecules above the liquid in a closed container. Acetone has weak IMFs so it will have a larger number of gas molecules above the liquid, and therefore a higher vapor pressure.	
Sign of ΔH_{vap} (+/-)	+	+
Explanation:	Heat of vaporization is always positive since vaporization requires an energy input into the system. If only the highest-energy molecules can vaporize, we need more energy to be absorbed into the system to keep vaporizing.	
Magnitude of ΔH_{vap} (larger/smaller)	larger	smaller
Explanation:	Heat of vaporization is a quantitative measure of the strength of IMFs in a substance. Stronger IMFs require more energy to overcome.	
Volatility (higher/lower)	lower	higher
Explanation:	A volatile substance is one that has a higher rate of vaporization (and a higher vapor pressure). So the compound with weakest IMFs is the most volatile.	