

- Name the two intermolecular forces, which best explain the difference in boiling points of 1-propanol ($\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$; bp = 97.2 °C) and 1-propanethiol ($\text{CH}_3\text{CH}_2\text{CH}_2\text{SH}$; bp = 67.8 °C).

H-bonding is dominant and strong in $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ due to the electronegativity of oxygen. The lower electronegativity of sulfur ensures that H-bonding is quite weak in $\text{CH}_3\text{CH}_2\text{CH}_2\text{SH}$ and weaker dipole-dipole interactions are probably more important.

The alkyl chain in both will interact via dispersion forces, but these are likely to be similar in both systems.