

#79859 Chemistry, General Chemistry

Ethanol ($\text{CH}_3\text{CH}_2\text{OH}$) and dimethyl ether (CH_3OCH_3) have the same formula ($\text{C}_2\text{H}_6\text{O}$).

Ethanol boils at 78 degrees Celsius whereas dimethyl ether boils at -24 degrees Celsius. Explain why the boiling point of the ether is so much lower than the boiling point of ethanol.

Answer:

These compounds are isomers – they have the same empirical formula, but different connectivity between the atoms. Therefore, their chemical and physical properties are distinct.

Ethanol is an alcohol with H-bonding so will have larger intermolecular forces and higher boiling point than the ether that does not have H-bonding.

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