

Intermolecular Forces

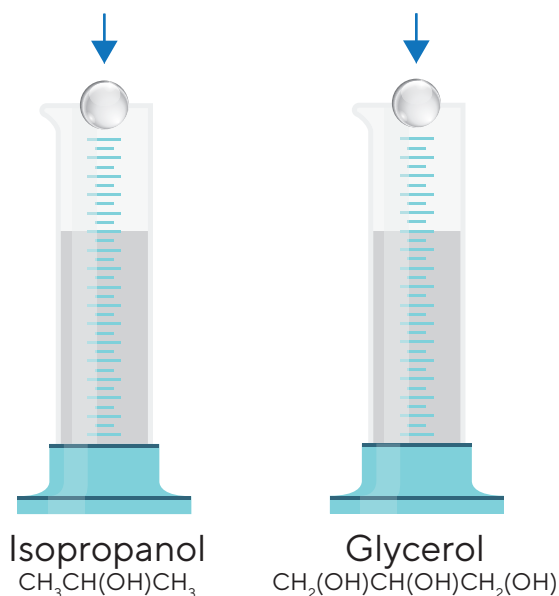
The strength of intermolecular forces determines how fast an object can move through different liquids.

Both **isopropanol** and **glycerol** are organic molecules with a three-carbon chain structure. However, isopropanol has a single O-H group, while glycerol has three O-H groups. The slower movement of the marble through glycerol compared to isopropanol indicates that the magnitude of the intermolecular forces between glycerol molecules is larger than the intermolecular forces that bring isopropanol molecules together.

In this example, the larger number of O-H groups in glycerol compared to isopropanol contributes to the difference in the magnitude of intermolecular forces in these liquids.

1. Two graduated cylinders are filled with equal volumes of isopropanol and glycerol, respectively.

2. A steel marble is dropped into each graduated cylinder at the same time. The marbles have the same size and mass.



3. The marble dropped into the isopropanol-containing cylinder hits the bottom faster than the marble dropped into the glycerol-containing cylinder.

