

COMMON POLAR PROTIC SOLVENTS

Polar protic solvents have high dielectric constants, high dipole moments, and participate in hydrogen bonding since they possess O-H or N-H bonds. These solvents can also serve as acids and weak nucleophiles, participating directly in reactions. They are most often used as the solvent for their conjugate bases. For example, water is used as the solvent for hydroxide ions.

Solvent	Structure	Dielectric Constant	Dipole Moment	Boiling Point (°C)
Water	$\text{H}-\ddot{\text{O}}-\text{H}$	80.1	1.85	100
Methanol	$\text{H}-\ddot{\text{O}}-\text{CH}_3$	33.0	1.69	64.5
Ammonia	$:\text{NH}_3$	31.6	1.42	-33.34
Ethanol	$\text{H}-\ddot{\text{O}}-\text{CH}_2\text{CH}_3$	25.3	1.69	78.3
<i>n</i> -Propanol	$\text{H}-\ddot{\text{O}}-\text{CH}_2\text{CH}_2\text{CH}_3$	20.1	1.68	97
Isopropyl alcohol	$\begin{array}{c} \text{CH}_3 \\ \\ \text{H}-\ddot{\text{O}}-\text{C}-\text{H} \\ \\ \text{CH}_3 \end{array}$	19.92	1.66	82.5
<i>t</i> -Butanol	$\begin{array}{c} \text{CH}_3 \\ \\ \text{H}-\ddot{\text{O}}-\text{C}-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	10.9	1.70	83
Acetic acid	$\begin{array}{c} \ddot{\text{O}} \\ \\ \text{H}-\ddot{\text{O}}-\text{C}-\text{CH}_3 \end{array}$	6.20	1.74	118