

Water Solubilities by Functional Group vs. Number of Carbons

Substance	Structure	Solubility in 100 g Water
1-propanol	$\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$	miscible
1-butanol	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$	7.4 g
1-pentanol	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$	2.7 g
propanoic acid	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{COH} \end{array}$	miscible
butanoic acid	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CH}_2\text{COH} \end{array}$	miscible
pentanoic acid	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{COH} \end{array}$	2.4 g
propanal	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CH} \end{array}$	30.6 g
butanal	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CH}_2\text{CH} \end{array}$	7.1 g
pentanal	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH} \end{array}$	1.35 g

Substance	Structure	Solubility in 100 g Water
propanone	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CCH}_3 \end{array}$	miscible
butanone	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CCH}_2\text{CH}_3 \end{array}$	24 g
1-aminopropane	$\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$	miscible
1-aminobutane	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$	miscible
1-aminopentane	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$	soluble
1-aminohexane	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$	slightly soluble
trimethylamine	$\text{N}(\text{CH}_3)_3$	41 g
diethylamine	$\text{CH}_3\text{CH}_2\text{NHCH}_2\text{CH}_3$	miscible
dipropylamine	$\text{CH}_3\text{CH}_2\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_3$	4 g
triethylamine	$\text{N}(\text{CH}_2\text{CH}_3)_3$	5.5 g