

Nine Classes of Organic Compounds

Class of Compound	Functional Group	General Formula	Example
halocarbon	-F, -Cl, -Br, -I	R-X	CH ₃ Cl chloromethane
alcohol	-OH	R-OH	CH ₃ CH ₂ CH ₂ OH 1-propanol
ether	C-O-C	R-O-R'	CH ₃ OCH ₂ CH ₃ methoxyethane
aldehyde	$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{H} \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{H} \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CH} \\ \text{propanal} \end{array}$
ketone	$\begin{array}{c} \text{O} \\ \parallel \\ \text{C}-\text{C}-\text{C} \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{R}' \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CCH}_3 \\ \text{propanone} \end{array}$
carboxylic acid	$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{OH} \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{OH} \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{COH} \\ \text{propanoic acid} \end{array}$
ester	$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{O}-\text{C} \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{OR}' \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{COCH}_3 \\ \text{methyl ethanoate} \end{array}$
amine	C-NH ₂	R-NH ₂	CH ₃ CH ₂ CH ₂ NH ₂ propanamine
amide	$\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{NH}_2 \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{NH}_2 \end{array}$	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CH}_2\text{CNH}_2 \\ \text{propanamide} \end{array}$