


Table 12.4 Some Functional Groups and Classes of Organic Compounds

Class of compounds	Functional group structure	IUPAC group prefix	IUPAC group suffix	Example
Alkanes	-	-	-ane	Butane, $\text{CH}_3(\text{CH}_2)_2\text{CH}_3$
Alkenes	$>\text{C}=\text{C}<$	-	-ene	But-1-ene, $\text{CH}_2=\text{CHCH}_2\text{CH}_3$
Alkynes	$-\text{C}\equiv\text{C}-$	-	-yne	But-1-yne, $\text{CH}\equiv\text{CCH}_2\text{CH}_3$
Arenes	-	-	-	Benzene, 
Halides	-X (X=F, Cl, Br, I)	halo-	-	1-Bromobutane, $\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{Br}$
Alcohols	-OH	hydroxy-	-ol	Butan-2-ol, $\text{CH}_3\text{CH}_2\text{CHOHCH}_3$
Aldehydes	-CHO	formyl, or. oxo	-al	Butanal, $\text{CH}_3(\text{CH}_2)_2\text{CHO}$
Ketones	$>\text{C}=\text{O}$	oxo-	-one	Butan-2-one, $\text{CH}_3\text{CH}_2\text{COCH}_3$
Nitriles	$-\text{C}\equiv\text{N}$	cyano	nitrile	Pentanenitrile, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CN}$
Ethers	-R-O-R-	alkoxy-	-	Ethoxyethane, $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$
Carboxylic acids	-COOH	carboxy	-oic acid	Butanoic acid, $\text{CH}_3(\text{CH}_2)_2\text{CO}_2\text{H}$
Carboxylate ions	$-\text{COO}^-$	-	-oate	Sodium butanoate, $\text{CH}_3(\text{CH}_2)_2\text{CO}_2^- \text{Na}^+$
Esters	-COOR	alkoxycarbonyl	-oate	Methyl propanoate, $\text{CH}_3\text{CH}_2\text{COOCH}_3$
Acyl halides	-COX (X=F, Cl, Br, I)	halocarbonyl	-oyl halide	Butanoyl chloride, $\text{CH}_3(\text{CH}_2)_2\text{COCl}$
Amines	$-\text{NH}_2$, $>\text{NH}$, $>\text{N}-$	amino-	-amine	Butan-2-amine, $\text{CH}_3\text{CHNH}_2\text{CH}_2\text{CH}_3$
Amides	$-\text{CONH}_2$, $-\text{CONHR}$, $-\text{CONR}_2$	-carbamoyl	-amide	Butanamide, $\text{CH}_3(\text{CH}_2)_2\text{CONH}_2$
Nitro compounds	$-\text{NO}_2$	nitro	-	1-Nitrobutane, $\text{CH}_3(\text{CH}_2)_3\text{NO}_2$
Sulphonic acids	$-\text{SO}_3\text{H}$	sulpho	sulphonic acid	Methylsulphonic acid $\text{CH}_3\text{SO}_3\text{H}$