
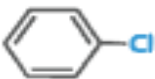
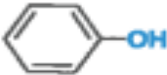





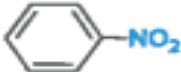




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| Class | General Formula | Example | Common Name (Systematic Name) | Common Suffix/Prefix (Systematic) |
|--------------------------------------|-----------------------------------|---|-----------------------------------|-----------------------------------|
| Hydrocarbons | | | | |
| Alkanes | RH | CH ₃ CH ₃ | ethane | -ane |
| Alkenes | RR'C=CR''R''' | H ₂ C=CH ₂ | ethylene (ethene) | -ene |
| Alkynes | RC≡CR' | HC≡CH | acetylene (ethyne) | (-yne) |
| Arenes | ArH ^a |  | benzene | -ene |
| Halogen-Containing Compounds | | | | |
| Alkyl halides | RX | CH ₃ CH ₂ Cl | ethyl chloride (chloroethane) | halide (halo-) |
| Aryl halides | ArX ^a |  | chlorobenzene | halo- |
| Oxygen-Containing Compounds | | | | |
| Alcohols | ROH ^a | CH ₃ CH ₂ OH | ethyl alcohol (ethanol) | -ol |
| Phenols | ArOH ^b |  | phenol | -ol |
| Ethers | ROR' | H ₃ CH ₂ COCH ₂ CH ₃ | diethyl ether | ether |
| Aldehydes | RCHO |  | acetaldehyde (ethanal) | -aldehyde (-al) |
| Ketones | RR'C=O |  | acetone (2-propanone) | -one |
| Carboxylic acids | RCO ₂ H |  | acetic acid (ethanoic acid) | -ic acid (-oic acid) |
| Carboxylic Acid Derivatives | | | | |
| Esters | RCO ₂ R' |  | methyl acetate (methyl ethanoate) | -ate (-oate) |
| Amides | RCONHR' |  | N-methylacetamide | -amide |
| Nitrogen-Containing Compounds | | | | |
| Amines | RNH ₂ , RNHR', RNR'R'' | CH ₃ CH ₂ NH ₂ | ethylamine | -amine |
| Nitriles | RC≡N | H ₃ CC≡N | acetonitrile | -nitrile |
| Nitro compounds | ArNO ₂ ^a |  | nitrobenzene | nitro- |

^aR Indicates an alkyl group ^bAr Indicates an aryl group.



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| Functional group | Example | pKa | Conjugate Base |
|---------------------|---------------------|-------|---------------------------------|
| Alkane | | ~50 | |
| Alkene | | ~43 | |
| Hydrogen | H-H | 36 | H [⊖] |
| Amine | NH ₃ | ~35 | NH ₂ [⊖] |
| Sulfoxide | | 31 | |
| Alkyne | R-C≡C-H | 25 | R-C≡C [⊖] |
| Ester | | 25 | |
| Nitrile | | 25 | |
| Ketone/ aldehyde | | 20-24 | |
| Alcohol | H ₃ C-OH | 17 | H ₃ C-O [⊖] |
| Water | HO-H | 16 | HO [⊖] |
| Malonates | | 13 | |



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| | | | |
|-------------------|--|------|-------------------------------------|
| Thiols | $\text{CH}_3\text{S-H}$ | 13 | $\text{CH}_3\text{S}^\ominus$ |
| Protonated amines | $\text{NH}_4^\oplus \text{Cl}^\ominus$ | 9-11 | NH_3 |
| Carboxylic acids | $\text{H}_3\text{C-C(=O)OH}$ | 4 | $\text{H}_3\text{C-C(=O)O}^\ominus$ |
| Hydrofluoric acid | H-F | 3.2 | F^\ominus |
| Sulfonic acids | (tosic acid) | -1 | |
| Hydronium ion | $\text{H}_3\text{O}^\oplus$ | -1.7 | H_2O |
| Sulfuric acid | H_2SO_4 | -3 | HSO_4^\ominus |
| Hydrochloric acid | HCl | -6 | Cl^\ominus |
| Hydrobromic acid | HBr | -9 | Br^\ominus |
| Hydroiodic acid | HI | -10 | I^\ominus |

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