# DISSOCIATION CONSTANTS

The data in this table are presented as values of $pK_a$, defined as the negative logarithm of the acid dissociation constant $K_a$. In the case of bases, the entry in the table is for the conjugate acid; e.g., ammonium ion for ammonia.

All values refer to dilute aqueous solutions at zero ionic strength at the temperature indicated. The table is arranged alphabetically by compound name.

## INORGANIC ACIDS AND BASES

| Name | Formula | Step | $t$/°C | $pK_a$ |
|---|---|---|---|---|
| Ammonia | $NH_3$ | | 25 | 9.25 |
| Arsenic acid | $H_3AsO_4$ | 1 | 25 | 2.26 |
| | | 2 | 25 | 6.76 |
| | | 3 | 25 | 11.29 |
| Arsenious acid | $H_2AsO_3$ | | 25 | 9.29 |
| Barium(II) ion | $Ba^{+2}$ | | 25 | 13.4 |
| Boric acid | $H_3BO_3$ | 1 | 20 | 9.27 |
| | | 2 | 20 | >14 |
| Calcium(II) ion | $Ca^{+2}$ | | 25 | 12.6 |
| Carbonic acid | $H_2CO_3$ | 1 | 25 | 6.35 |
| | | 2 | 25 | 10.33 |
| Chlorous acid | $HClO_2$ | | 25 | 1.94 |
| Hydrazoic acid | $HN_3$ | | 25 | 4.6 |
| Hydrocyanic acid | HCN | | 25 | 9.21 |
| Hydrofluoric acid | HF | | 25 | 3.20 |
| Hydrogen peroxide | $H_2O_2$ | | 25 | 11.62 |
| Hydrogen sulfide | $H_2S$ | 1 | 25 | 7.05 |
| | | 2 | 25 | 19 |
| Hypobromous acid | HBrO | | 25 | 8.55 |
| Hypochlorous acid | HClO | | 25 | 7.40 |
| Hypoiodous acid | HIO | | 25 | 10.5 |
| Phosphoric acid | $H_3PO_4$ | 1 | 25 | 2.16 |
| | | 2 | 25 | 7.21 |
| | | 3 | 25 | 12.32 |
| Sulfuric acid | $H_2SO_4$ | 2 | 25 | 1.99 |
| Sulfurous acid | $H_2SO_3$ | 1 | 25 | 1.85 |
| Thiocyanic acid | HSCN | | 25 | -1.8 |
| Water | $H_2O$ | | 25 | 13.995 |

## ORGANIC ACIDS AND BASES

| Mol. Form. | Name | Step | $t$/°C | $pK_a$ |
|---|---|---|---|---|
| $CH_2O_2$ | Formic acid | | 25 | 3.75 |
| $CH_3NO_2$ | Nitromethane | | 25 | 10.21 |
| $CH_5N$ | Methylamine | | 25 | 10.66 |
| $C_2HCl_3O_2$ | Trichloroacetic acid | | 20 | 0.66 |
| $C_2H_2O_4$ | Oxalic acid | 1 | 25 | 1.25 |
| | | 2 | 25 | 3.81 |
| $C_2H_3ClO_2$ | Chloroacetic acid | | 25 | 2.87 |
| $C_2H_4O_2$ | Acetic acid | | 25 | 4.756 |
| $C_2H_5N$ | Ethyleneimine | | 25 | 8.04 |
| $C_2H_5NO$ | Acetamide | | 25 | 15.1 |
| $C_2H_7N$ | Ethylamine | | 25 | 10.65 |
| $C_2H_7N$ | Dimethylamine | | 25 | 10.73 |
| $C_3H_3NO_2$ | Cyanoacetic acid | | 25 | 2.47 |
| $C_3H_4O_2$ | Acrylic acid | | 25 | 4.25 |
| $C_3H_4O_3$ | Pyruvic acid | | 25 | 2.39 |
| $C_3H_4O_4$ | Malonic acid | 1 | 25 | 2.85 |
| | | 2 | 25 | 5.70 |
| $C_3H_6O_2$ | Propanoic acid | | 25 | 4.87 |
| $C_3H_6O_3$ | 3-Hydroxypropanoic acid | | 25 | 4.51 |
| $C_3H_8O_3$ | Glycerol | | 25 | 14.15 |
| $C_3H_9N$ | Propylamine | | 25 | 10.54 |
| $C_4H_4N_2$ | Pyrimidine | | 20 | 1.23 |
| $C_4H_4N_2O_3$ | Barbituric acid | | 25 | 4.01 |
| $C_4H_4O_4$ | Maleic acid | 1 | 25 | 1.92 |
| | | 2 | 25 | 6.23 |
| $C_4H_4O_4$ | Fumaric acid | 1 | 25 | 3.02 |
| | | 2 | 25 | 4.38 |
| $C_4H_6O_4$ | Succinic acid | 1 | 25 | 4.21 |
| | | 2 | 25 | 5.64 |
| $C_4H_6O_5$ | Malic acid | 1 | 25 | 3.40 |
| | | 2 | 25 | 5.11 |
| $C_4H_6O_6$ | *DL*-Tartaric acid | 1 | 25 | 3.03 |
| | | 2 | 25 | 4.37 |
| $C_4H_8O_2$ | Butanoic acid | | 25 | 4.83 |
| $C_5H_5N$ | Pyridine | | 25 | 5.23 |
| $C_6H_7NO$ | 2-Aminophenol | 1 | 20 | 4.78 |
| | | 2 | 20 | 9.97 |
| $C_6H_8O_6$ | *L*-Ascorbic acid | 1 | 25 | 4.04 |
| | | 2 | 16 | 11.7 |
| $C_6H_8O_7$ | Citric acid | 1 | 25 | 3.13 |
| | | 2 | 25 | 4.76 |
| | | 3 | 25 | 6.40 |
| $C_7H_5ClO_2$ | 2-Chlorobenzoic acid | | 25 | 2.90 |
| $C_7H_5ClO_2$ | 3-Chlorobenzoic acid | | 25 | 3.84 |
| $C_7H_5ClO_2$ | 4-Chlorobenzoic acid | | 25 | 4.00 |
| $C_7H_6O_2$ | Benzoic acid | | 25 | 4.204 |
| $C_7H_6O_3$ | 2-Hydroxybenzoic acid | 1 | 20 | 2.98 |
| | | 2 | 20 | 13.6 |
| $C_7H_6O_3$ | 3-Hydroxybenzoic acid | 1 | 25 | 4.08 |
| | | 2 | 19 | 9.92 |
| $C_7H_9N$ | Benzylamine | | 25 | 9.34 |
| $C_8H_6O_4$ | Terephthalic acid | 1 | 25 | 3.54 |
| | | 2 | 25 | 4.34 |
| $C_8H_{16}O_2$ | Octanoic acid | | 25 | 4.89 |

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