

E1: Acid Dissociation Constants at 25°C

Acetic acid CHyCOy	Name	Formula	K _{a1}	р $K_{\mathrm{a}1}$	K _{a2}	р K_{a2}	K _{a3}	р $K_{ m a3}$	K _{a4}	р $K_{ m a4}$
Arisentic acid II ₅ ASQ4 5.5 × 10 ⁻³ 2.26 1.7 × 10 ⁻⁷ 6.76 5.1 × 10 ⁻¹² 1.29							- as	- P143		- -
Boric acid H ₃ BO ₃ 5.4 × 10 ⁻¹³ 9.27 × 1×10 ⁻¹⁴ 1.10 × 1.2	Arsenic				1.7×10^{-7}	6.76	5.1 × 10 ⁻¹²	11.29	-	-
Bromoacetic CH5,BtCO2 cacid 13,50C3 10 - 10 + 10 - 10 - 10 - 10 - 10 - 10 -		C ₆ H ₅ CO ₂ H	6.25×10^{-5}	4.204	-	-	-	-	-	-
Carbonic H2CO3 4.5 × 10^-7 6.35 4.7 × 10^-11 10.33 -	Boric acid	H ₃ BO ₃	5.4 × 10 ⁻¹⁰ *	9.27*	>1 × 10 ⁻¹⁴ *	>14*	-	-	-	-
acid H2O3 4.5 × 10 9.35 4.7 × 10 × 10.33			1.3×10^{-3}	2.90	-	-	-	-	-	-
c acid H 1.3 × 10 2.87 1 - 1		H ₂ CO ₃	4.5×10^{-7}	6.35	4.7×10^{-11}	10.33	-	-	-	-
acid HCDQ 1.18 10 1 1.94 1.94 -			1.3×10^{-3}	2.87	-	-	-	-	-	-
acid H ₂ CrQ ₄ 1.8 × 10 ⁻⁸ 0.74 3.2 × 10 ⁻⁸ 6.49 -		HClO ₂	1.1×10^{-2}	1.94	-	-	-	-	-	-
Cyanic acid HCNO 3.5 × 10 ⁻⁴ 3.46 -		H ₂ CrO ₄	1.8×10^{-1}	0.74	3.2×10^{-7}	6.49	-	-	-	-
Dichloroace tic acid CHCl ₂ CO ₂ H 4.5 × 10 ⁻² 1.35 -	Citric acid	$C_6H_8O_7$	7.4×10^{-4}	3.13	1.7×10^{-5}	4.76	4.0×10^{-7}	6.40	-	-
tic acid H 4.5 × 10	Cyanic acid	HCNO	3.5×10^{-4}	3.46	-	-	-	-	-	-
C acid CH2FCO2H 2.8 × 10 ° 2.99 1 1 2 1 2 3 3 3 3 3 3 3 3 3 3 3 3 4 6 3 5 4 6 2 1 2 4 3 2 4 6 2 1 2 <td></td> <td></td> <td>4.5×10^{-2}</td> <td>1.35</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td>			4.5×10^{-2}	1.35	-	-	-	-	-	-
Hydrazoic acid HN3 2.5×10^{-5} 4.6 - - - - - - - Hydrocyani c acid HCN 6.2×10^{-10} 9.21 - - </td <td></td> <td>CH₂FCO₂H</td> <td>2.6×10^{-3}</td> <td>2.59</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td>		CH ₂ FCO ₂ H	2.6×10^{-3}	2.59	-	-	-	-	-	-
acid HN_3 2.5×10^{-10} 4.6 $ -$	Formic acid	CH ₂ O ₂	1.8×10^{-4}	3.75	-	-	-	-	-	-
c acid HCN 6.2 × 10 9.21 -	-	HN_3	2.5×10^{-5}	4.6	-	-	-	-	-	-
Hydrogen peroxide HOOH 2.0×10^{-12} 11.7 Lox 10^{-11} 11.0 $ -$		HCN	6.2×10^{-10}	9.21	-	-	-	-	-	-
Hydrogen selenide H_2Se 1.3×10^{-4} 3.89 1.0×10^{-11} 11.0 - - - - - - Hydrogen sulfide H_2S 8.9×10^{-8} 7.05 1×10^{-19} 19 - - - - - Hydrogen telluride H_2 Te $2.5 \times 10^{-3\ddagger}$ 2.6^{\ddagger} 1×10^{-11} 11 - - - - - Hypobromo us acid $HBrO$ 2.8×10^{-9} 8.55 - - - - - - - -		HF	6.3×10^{-4}	3.20	-	-	-	-	-	-
Hydrogen sulfide H_2S 8.9×10^{-8} 7.05 1×10^{-19} 19 $ -$		НООН	2.0×10^{-12}	11.7						
Sulfide H_2S 8.9×10^{-9} 7.05 1×10^{-11} 19 $ -$ <		H ₂ Se	1.3 × 10 ⁻⁴	3.89	1.0× 10 ⁻¹¹	11.0	-	-	-	-
telluride H_2 1e 2.5 × 10 × 2.6 × 10 × 10 × 11 11 × 10 11		H_2S	8.9 × 10 ⁻⁸	7.05	1 × 10 ⁻¹⁹	19	-	-	-	-
us acid HBIO 2.8 × 10 6.55		H ₂ Te	$2.5 \times 10^{-3\ddagger}$	2.6 [‡]	1 × 10 ⁻¹¹	11	-	-	-	-
* Measured at 20°C. not 25°C.		HBrO	2.8×10^{-9}	8.55	-	-	-	-	-	-
•										
‡ Measured at 18°C, not 25°C.										





Name	Formula	K _{a1}	pK_{a1}	K _{a2}	pK_{a2}	K _{a3}	pK_{a3}	K_{a4}	pK_{a4}
Hypochloro us acid	HClO	4.0×10^{-8}	7.40	-	-	-	-	-	-
Hypoiodous acid	HIO	3.2×10^{-11}	10.5	-	-	-	-	-	-
Iodic acid	HIO ₃	1.7×10^{-1}	0.78	-	-	-	-	-	-
Iodoacetic acid	CH ₂ ICO ₂ H	6.6×10^{-4}	3.18	-	-	-	-	-	-
Nitrous acid	HNO ₂	5.6×10^{-4}	3.25	-	-	-	-	-	-
Oxalic acid	$C_2H_2O_4$	5.6×10^{-2}	1.25	1.5×10^{-4}	3.81	-	-	-	-
Periodic acid	HIO ₄	2.3×10^{-2}	1.64	-	-	-	-	-	-
Phenol	C ₆ H ₅ OH	1.0×10^{-10}	9.99	-	-	-	-	-	-
Phosphoric acid	H ₃ PO ₄	6.9×10^{-3}	2.16	6.2×10^{-8}	7.21	4.8×10^{-13}	12.32	-	-
Phosphorou s acid	H ₃ PO ₃	5.0 × 10 ⁻² *	1.3*	2.0×10^{-7} *	6.70*	-	-	-	-
Pyrophosph oric acid	$H_4P_2O_7$	1.2×10^{-1}	0.91	7.9×10^{-3}	2.10	2.0×10^{-7}	6.70	4.8×10^{-10}	9.32
Resorcinol	C ₆ H ₄ (OH) ₂	4.8×10^{-10}	9.32	7.9×10^{-12}	11.1	-	-	-	-
Selenic acid	H_2SeO_4	Strong	Strong	2.0×10^{-2}	1.7	-	-	-	-
Selenious acid	H ₂ SeO ₃	2.4×10^{-3}	2.62	4.8×10^{-9}	8.32	-	-	-	-
Sulfuric acid	H ₂ SO ₄	Strong	Strong	1.0×10^{-2}	1.99	-	-	-	-
Sulfurous acid	H ₂ SO ₃	1.4×10^{-2}	1.85	6.3×10^{-8}	7.2	-	-	-	-
meso- Tartaric acid	$C_4H_6O_6$	6.8×10^{-4}	3.17	1.2×10^{-5}	4.91	-	-	-	-
Telluric acid	H ₂ TeO ₄	$2.1 \times 10^{-8\ddagger}$	7.68 [‡]	$1.0 \times 10^{-11\ddagger}$	11.0 [‡]	-	-	-	-
Tellurous acid	H ₂ TeO ₃	5.4 × 10 ⁻⁷	6.27	3.7×10^{-9}	8.43	-	-	-	-
Trichloroac etic acid	CCl ₃ CO ₂ H	2.2×10^{-1}	0.66	-	-	-	-	-	-
Trifluoroac etic acid	CF₃CO₂H	3.0×10^{-1}	0.52	-	-	-	-	-	-
				* Measured at 2	20°C, not 25°C	2.			
‡ Measured at 18°C, not 25°C.									

Source of data: CRC Handbook of Chemistry and Physics, 84th Edition (2004).

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