



This is “Appendix C: Dissociation Constants and pKa Values for Acids at 25°C”, appendix 3 from the book [Principles of General Chemistry \(index.html\)](#) (v. 1.0).

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Chapter 27

Appendix C: Dissociation Constants and pK_a Values for Acids at 25°C

Name	Formula	K_{a1}	pK_{a1}	K_{a2}	pK_{a2}	K_{a3}	pK_{a3}
Acetic acid	CH ₃ CO ₂ H	1.75×10^{-5}	4.756				
Arsenic acid	H ₃ AsO ₄	5.5×10^{-3}	2.26	1.7×10^{-7}	6.76	5.1×10^{-12}	11.29
Benzoic acid	C ₆ H ₅ CO ₂ H	6.25×10^{-5}	4.204				
Boric acid	H ₃ BO ₃	$5.4 \times 10^{-10*}$	9.27*	$>1 \times 10^{-14*}$	$>14^*$		
Bromoacetic acid	CH ₂ BrCO ₂ H	1.3×10^{-3}	2.90				
Carbonic acid	H ₂ CO ₃	4.5×10^{-7}	6.35	4.7×10^{-11}	10.33		
Chloroacetic acid	CH ₂ ClCO ₂ H	1.3×10^{-3}	2.87				
Chlorous acid	HClO ₂	1.1×10^{-2}	1.94				
Chromic acid	H ₂ CrO ₄	1.8×10^{-1}	0.74	3.2×10^{-7}	6.49		
Citric acid	C ₆ H ₈ O ₇	7.4×10^{-4}	3.13	1.7×10^{-5}	4.76	4.0×10^{-7}	6.40
Cyanic acid	HCNO	3.5×10^{-4}	3.46				
Dichloroacetic acid	CHCl ₂ CO ₂ H	4.5×10^{-2}	1.35				
Fluoroacetic acid	CH ₂ FCO ₂ H	2.6×10^{-3}	2.59				
Formic acid	CH ₂ O ₂	1.8×10^{-4}	3.75				
Hydrazoic acid	HN ₃	2.5×10^{-5}	4.6				
Hydrocyanic acid	HCN	6.2×10^{-10}	9.21				
Hydrofluoric acid	HF	6.3×10^{-4}	3.20				
* Measured at 20°C, not 25°C.							
‡ Measured at 18°C, not 25°C.							

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Name	Formula	K_{a1}	pK_{a1}	K_{a2}	pK_{a2}	K_{a3}	pK_{a3}
Hydrogen selenide	H ₂ Se	1.3×10^{-4}	3.89	1.0×10^{-11}	11.0		
Hydrogen sulfide	H ₂ S	8.9×10^{-8}	7.05	1×10^{-19}	19		
Hydrogen telluride	H ₂ Te	$2.5 \times 10^{-3\ddagger}$	2.6 [‡]	1×10^{-11}	11		
Hypobromous acid	HBrO	2.8×10^{-9}	8.55				
Hypochlorous 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 ₂ H ₂ O 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
Phosphorous acid	H ₃ PO ₃	$5.0 \times 10^{-2*}$	1.3*	$2.0 \times 10^{-7*}$	6.70*		
Pyrophosphoric acid	H ₄ P ₂ O ₇	1.2×10^{-1}	0.91	7.9×10^{-3}	2.10	2.0×10^{-7}	6.70
Resorcinol	C ₆ H ₄ (OH) ₂	4.8×10^{-10}	9.32	7.9×10^{-12}	11.1		
Selenic acid	H ₂ SeO 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 ₄ H ₆ O ₆	6.8×10^{-4}	3.17	1.2×10^{-5}	4.91		
* Measured at 20°C, not 25°C.							
‡ Measured at 18°C, not 25°C.							

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Name	Formula	K_{a1}	pK_{a1}	K_{a2}	pK_{a2}	K_{a3}	pK_{a3}
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		
Trichloroacetic acid	CCl ₃ CO ₂ H	2.2×10^{-1}	0.66				
Trifluoroacetic acid	CF ₃ CO ₂ H	3.0×10^{-1}	0.52				
* Measured at 20°C, not 25°C.							
‡ Measured at 18°C, not 25°C.							

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