

APPENDIX H

Ionization Constants of Weak Acids

Ionization Constants of Weak Acids

Acid	Formula	K_a at 25 °C	Lewis Structure
acetic	$\text{CH}_3\text{CO}_2\text{H}$	1.8×10^{-5}	
arsenic	H_3AsO_4	5.5×10^{-3}	
	H_2AsO_4^-	1.7×10^{-7}	
	HAsO_4^{2-}	3.0×10^{-12}	
arsenous	H_3AsO_3	5.1×10^{-10}	
boric	H_3BO_3	5.4×10^{-10}	
carbonic	H_2CO_3	4.3×10^{-7}	
	HCO_3^-	4.7×10^{-11}	
cyanic	HCNO	2×10^{-4}	
formic	HCO_2H	1.8×10^{-4}	

TABLE H1

Acid	Formula	K_a at 25 °C	Lewis Structure
hydrazoic	HN_3	2.5×10^{-5}	
hydrocyanic	HCN	4.9×10^{-10}	
hydrofluoric	HF	6.4×10^{-4}	
hydrogen peroxide	H_2O_2	2.4×10^{-12}	
hydrogen selenide	H_2Se	1.29×10^{-4}	
	HSe^-	1×10^{-12}	
hydrogen sulfate ion	HSO_4^-	1.2×10^{-2}	
hydrogen sulfide	H_2S	8.9×10^{-8}	
	HS^-	1.0×10^{-19}	
hydrogen telluride	H_2Te	2.3×10^{-3}	
	HTe^-	1.6×10^{-11}	
hypobromous	HBrO	2.8×10^{-9}	
hypochlorous	HClO	2.9×10^{-8}	
nitrous	HNO_2	4.6×10^{-4}	
oxalic	$\text{H}_2\text{C}_2\text{O}_4$	6.0×10^{-2}	
	HC_2O_4^-	6.1×10^{-5}	
phosphoric	H_3PO_4	7.5×10^{-3}	
	H_2PO_4^-	6.2×10^{-8}	
	HPO_4^{2-}	4.2×10^{-13}	

TABLE H1

Acid	Formula	K_a at 25 °C	Lewis Structure
phosphorous	H_3PO_3	5×10^{-2}	$\begin{array}{c} \text{:}\ddot{\text{O}}\text{H} \\ \\ \text{H}\ddot{\text{O}}-\text{P}-\ddot{\text{O}}\text{H} \\ \\ \ddot{\text{O}} \end{array}$
	H_2PO_3^-	2.0×10^{-7}	
sulfurous	H_2SO_3	1.6×10^{-2}	$\begin{array}{c} \text{:}\ddot{\text{O}}\text{H} \\ \\ \ddot{\text{O}}-\text{S}-\ddot{\text{O}}\text{H} \\ \\ \ddot{\text{O}} \end{array}$
	HSO_3^-	6.4×10^{-8}	

TABLE H1