Relative Strengths of Acids in Aqueous Solutions at Room Temperature

All ions are aquated

$$HB \rightleftharpoons H^+(aq) + B^-(aq) \qquad K_A = \frac{[H^+][B^-]}{[HB]}$$

Acid	Strength	Reaction	K_a
perchloric acid	Very Strong	$HClO_4 \rightarrow H^+ + ClO_4^-$	Very large
hydroiodic acid		$HI \rightarrow H^+ + I^-$	Very large
hydrobromic acid		$HBr \rightarrow H^+ + Br^-$	Very large
hydrochloric acid		$HCl \rightarrow H^+ + Cl^-$	Very large
nitric acid		$HNO_3 \rightarrow H^+ + NO_3^-$	Very large
sulfuric acid	Strong	$H_2SO_4 \rightarrow H^+ + HSO_4^-$	Large
orange IV		$H(ind) \rightarrow H^+ + Ind^-$	$\sim 10^{-2}$
oxalic acid		$HOOCCOOH \rightarrow H^+ + HOOCCOO^-$	5.4×10^{-2}
sulfurous acid		$H_2SO_3 \rightarrow H^+ + HSO_3^-$	1.7×10^{-2}
hydrogen sulfate ion		$HSO_4^- \rightarrow H^+ + SO_4^{-2}$	1.3×10^{-2}
phosphoric acid	Weak	$H_3PO_4 \rightarrow H^+ + H_2PO_4^-$	7.1×10^{-3}
ferric ion		$Fe(H_2O)_6^{+3} \rightarrow H^+ + Fe(H_2O)_5(OH)^{+2}$	6×10^{-3}
hydrogen telluride		$H_2Te \rightarrow H^+ + HTe^-$	2.3×10^{-3}
citric acid		$H_3C_6H_5O_7 \rightarrow H^+ + H_2C_6H_5O_7^-$	7.4×10^{-4}
methyl orange		$H(ind) \rightarrow H^+ + Ind^-$	$\sim 10^{-4}$
hydrofluoric acid		$HF \rightarrow H^+ + F^-$	6.7×10^{-4}
nitrous acid		$HNO_2 \rightarrow H^+ + NO_2^-$	5.1×10^{-4}
hydrogen selenide		$H_2Se \rightarrow H^+ + HSe^-$	1.7×10^{-4}
chromic ion		$Cr(H_2O)_6^{+3} \rightarrow H^+ + Cr(H_2O)_5(OH)^{+2}$	1×10^{-4}
benzoic acid		$C_6H_5COOH \rightarrow H^+ + C_6H_5COO^-$	6.6×10^{-5}
hydrogen oxalate ion	Weaker	$HOOCCOO^- \rightarrow H^+ + OOCCOO^{-2}$	5.4×10^{-5}
acetic acid		$CH_3COOH \rightarrow H^+ + CH_3COO^-$	1.8×10^{-5}
dihydrogen citrate		$H_2C_6H_5O_7^- \rightarrow H^+ + HC_6H_5O_7^{-2}$	1.7×10^{-5}
aluminum ion		$Al(H_2O)_6^{+3} \rightarrow H^+ + Al(H_2O)_5(OH)^{+2}$	1×10^{-5}
carbonic acid		$H_2CO_3 \rightarrow H^+ + HCO_3^-$	4.4×10^{-7}
hydrogen citrate		$HC_6H_5O_7^{-2} \rightarrow H^+ + C_6H_5O_7^{-3}$	4.0×10^{-7}
hydrogen sulfide		$H_2S \rightarrow H^+ + HS^-$	1.0×10^{-7}
dihydrogen phosphate ion		$H_2PO_4^- \rightarrow H^+ + HPO_4^{-2}$	6.3×10^{-8}
hydrogen sulfite ion		$HSO_3^- \rightarrow H^+ + SO_3^{-2}$	6.2×10^{-8}
phenolphthalein		$H(ind) \rightarrow H^+ + Ind^-$	$\sim 10^{-9}$
alizarin yellow		$H(ind) \rightarrow H^+ + Ind^-$	$\sim 10^{-10}$
ammonium ion		$NH_4^+ \rightarrow H^+ + NH_3$	5.7×10^{-10}
boric acid		$H_3BO_3 \rightarrow H^+ + H_2BO_3^-$	5.8×10^{-10}
hydrogen telluride ion		$HTe^- \rightarrow H^+ + Te^{-2}$	1×10^{-11}
hydrogen carbonate ion		$HCO_3^- \rightarrow H^+ + CO_3^{-2}$	4.7×10^{-11}
indigo carmine		$H(ind) \rightarrow H^+ + Ind^-$	$\sim 10^{-12}$
hydrogen peroxide		$H_2O_2 \rightarrow H^+ + HO^{2-}$	2.4×10^{-12}
monohydrogen phosphate ion		$HPO_4^{-2} \rightarrow H^+ + PO_4^{-3}$	4.4×10^{-13}
hydrogen sulfate ion		$HS^- \rightarrow H^+ + S^{-2}$	1.3×10^{-13}
water	Very Weak	$H_2O \rightarrow H^+ + OH^-$	1.8×10^{-16}
hydroxide ion		$OH^- \rightarrow H^+ + O^{-2}$	$< 10^{-36}$
ammonia		$NH_3 \rightarrow H^+ + NH^{2-}$	very small