

### Acid–Base Indicators at 298.15 K

Indicator	Suggested Abbreviation(s)	pH Range	Colour Change as pH Increases	$K_a$
methyl violet	HMv(aq) / Mv <sup>−</sup> (aq)	0.0– 1.6	yellow to blue	$\sim 2 \times 10^{-1}$
cresol red	H <sub>2</sub> Cr(aq) / HCr <sup>−</sup> (aq)	0.0 – 1.0	red to yellow	$\sim 3 \times 10^{-1}$
	HCr <sup>−</sup> (aq) / Cr <sup>2−</sup> (aq)	7.0 – 8.8	yellow to red	$3.5 \times 10^{-9}$
thymol blue	H <sub>2</sub> Tb(aq) / HTb <sup>−</sup> (aq)	1.2 – 2.8	red to yellow	$2.2 \times 10^{-2}$
	HTb <sup>−</sup> (aq) / Tb <sup>2−</sup> (aq)	8.0 – 9.6	yellow to blue	$6.3 \times 10^{-10}$
orange IV	HOr(aq) / Or <sup>−</sup> (aq)	1.4 – 2.8	red to yellow	$\sim 1 \times 10^{-2}$
methyl orange	HMo(aq) / Mo <sup>−</sup> (aq)	3.2 – 4.4	red to yellow	$3.5 \times 10^{-4}$
bromocresol green	HBg(aq) / Bg <sup>−</sup> (aq)	3.8 – 5.4	yellow to blue	$1.3 \times 10^{-5}$
methyl red	HMr(aq) / Mr <sup>−</sup> (aq)	4.8 – 6.0	red to yellow	$1.0 \times 10^{-5}$
chlorophenol red	HCh(aq) / Ch <sup>−</sup> (aq)	5.2 – 6.8	yellow to red	$5.6 \times 10^{-7}$
bromothymol blue	HBb(aq) / Bb <sup>−</sup> (aq)	6.0 – 7.6	yellow to blue	$5.0 \times 10^{-8}$
phenol red	HPr(aq) / Pr <sup>−</sup> (aq)	6.6 – 8.0	yellow to red	$1.0 \times 10^{-8}$
phenolphthalein	HPh(aq) / Ph <sup>−</sup> (aq)	8.2 – 10.0	colourless to pink	$3.2 \times 10^{-10}$
thymolphthalein	HTh(aq) / Th <sup>−</sup> (aq)	9.4 – 10.6	colourless to blue	$1.0 \times 10^{-10}$
alizarin yellow R	HAY(aq) / Ay <sup>−</sup> (aq)	10.1 – 12.0	yellow to red	$6.9 \times 10^{-12}$
indigo carmine	HIc(aq) / Ic <sup>−</sup> (aq)	11.4 – 13.0	blue to yellow	$\sim 6 \times 10^{-12}$
1,3,5–trinitrobenzene	HNb(aq) / Nb <sup>−</sup> (aq)	12.0 – 14.0	colourless to orange	$\sim 1 \times 10^{-13}$