

Indicators

REDOX INDICATOR

pH Independent Redox Indicators

Indicator	E^0, V	Color of Oxidized form	Color of Reduced form
2,2'-bipyridine (Ru complex)	+1.33	Colorless	Yellow
Nitrophenanthroline (Fe complex)	+1.25	Cyan	Red
N-Phenylanthranilic acid	+1.08	violet-red	Colorless
1,10-Phenanthroline iron(II) sulfate complex (Ferroin)	+1.06	Cyan	Red
N-Ethoxychrysoidine	+1.00	Red	Yellow
2,2'-Bipyridine (Fe complex)	+0.97	Cyan	Red
5,6-Dimethylphenanthroline (Fe complex)	+0.97	yellow-green	Red
o-Dianisidine	+0.85	Red	Colorless
Sodium diphenylamine sulfonate	+0.84	red-violet	Colorless
Diphenylbenzidine	+0.76	Violet	Colorless
Diphenylamine	+0.76	Violet	Colorless
Viologen	-0.43	Colorless	blue

pH Dependent Redox Indicators

Indicator	E^0, V at pH=0	E^0, V at pH=7	Color of Oxidized form	Color of Reduced form
Sodium 2,6-Dibromophenol-indophenol or Sodium 2,6-Dichlorophenol-indophenol	+0.64	+0.22	Blue	Colorless
Sodium o-Cresol indophenol	+0.62	+0.19	Blue	Colorless
Thionine (syn. Lauth's violet)	+0.56	+0.06	Violet	Colorless
Methylene blue	+0.53	+0.01	Blue	Colorless
Indigotetrasulfonic acid	+0.37	-0.05	Blue	Colorless
Indigotrisulfonic acid	+0.33	-0.08	Blue	Colorless
Indigo carmine (syn. Indigodisulfonic acid)	+0.29	-0.13	Blue	Colorless
Indigomono sulfonic acid	+0.26	-0.16	Blue	Colorless
Phenosafranin	+0.28	-0.25	Red	Colorless
Safranin T	+0.24	-0.29	red-violet	Colorless
Neutral red	+0.24	-0.33	Red	colorless

ACID BASE INDICATOR

Indicator	Colour change		pH transition range	
	Acid form	Base form	Acid form predominate of pH	Base form predominate at pH
Picric acid	Colourless	Yellow	0.0	1.2
Malachite green	Yellow	Green	0.0	2.0
Methyl violet	Yellow	Violet	0.1	3.2
m-Cresol purple	Red	Yellow	1.2	2.8
Thymol blue	Red	Yellow	1.2	2.8
Bromophenol blue	Yellow	Blue	3.0	4.6
Congo red	Blue	Red	3.0	5.0
Methyl orange	Red	Yellow	3.1	4.4
Bromocresol green	Yellow	Blue	3.8	5.4
Methyl red	Red	Yellow	4.2	6.3
Litmus	Red	Blue	4.5	8.3
Propyl red	Red	Yellow	4.6	6.4
Chlorophenol red	Yellow	Red	4.8	6.4
Hematoxylin	Yellow	Red	5.0	6.0
p-Nitrophenol	Colourless	Yellow	5.0	7.0
Bromocresol purple	Yellow	Purple	5.2	6.8
Bromothymol blue	Yellow	Blue	6.0	7.6
Phenol red	Yellow	Red	6.8	8.4
m-Cresol purple	Yellow	Purple	7.4	9.0
Thymol blue	Yellow	Blue	8.0	9.6
Phenolphthalein	Colourless	Red	8.3	10.0
Thymolphthalein	Colourless	Blue	9.3	10.5
Alizarin yellow R	Yellow	Lavender	10.0	12.1
Alizarin blue S	Green	Blue	11.0	13.0
Malachite green	Green	Colourless	11.4	13.0

COMPLEXOMETRIC

- Calcein with EDTA for calcium
- Curcumin for boron, although the red color change of curcumin also occurs for pH > 8.4
- Eriochrome Black T for calcium, magnesium and aluminium
- Fast Sulphon Black with EDTA for copper
- Hematoxylin for copper
- Murexide calcium and rare earths
- Xylenol orange for gallium, indium and scandium

POTENTIOMETRIC

Indicator name	Reduced form colour	Oxidized form colour	Normal potential at pH 0 (V)	Normal potential at pH 7 (V)
Safranin T	Colourless	Red	0.24	-0.29
Neutral red	Colourless	Red	0.24	-0.33
Indigomonosulfonic acid	Colourless	Blue	0.26	-0.16
Phenosafranin	Colourless	Red	0.28	-0.25
Indigotetrasulfonic acid	Colourless	Blue	0.36	-0.05
Methylene blue	Colourless	Green-blue	0.36	???
Nile blue	Colourless	Blue	0.41	???
Benzi dine	Colourless	Blue	0.92	???
Vari amine blue B	Colourless	Blue	0.69	???
Dipehnylbenzidine	Colourless	Violet	0.76	TS
Diphenylamine sulfonic acid	Colourless	Red-violet	0.85	TS
Erioglaucine A	Green	Red	1.00	???
p-ethoxychrysoidine	Red	Light yellow	1.00	TS
Setoglaucine	Yellow-green	Light red	1.06	???
p-Nitrodiphenylamine	Colourless	Violet	1.06	???
Ferroin	Red	Light blue	1.06	???
5-Nitroferroin	Red-violet	Light blue	1.25	???
2,2'-Bipyridine (Ru complex)	Colourless	Yellow	1.33	TS