Colour Changes in Chemical Reactions

Visual Memory Card · Class 10 Chemistry

Colour changes are a key observable sign of a reaction. Boards frequently ask for the colour before and after — memorise all entries below.

Master Colour Change Table

Reaction / Experiment	Before	→	After	Reason / Type
Cu sulphate + Iron Fe + CuSO4	Blue solution	→	Light green solution + Brown Cu deposit	Displacement: Fe displaces Cu
Heating CuSO4 (water of cryst.)	Blue crystals	→	White powder (anhydrous CuSO4)	Loss of water of crystallisation
Heating FeSO4 (Green vitriol)	Green crystals	→	Reddish-brown powder (Fe2O3)	Decomposition on heating
Pb(NO3)2 + KI	Colourless solutions	→	Yellow precipitate (PbI2)	Double displacement / Precipitation
AgCl in sunlight 2AgCl → 2Ag + Cl2	White solid	→	Grey solid (Ag metal)	Photolytic decomposition
Copper heated in air 2Cu + O2 → 2CuO	Reddish-brown powder	→	Black powder (CuO)	Oxidation — gains oxygen
Zn + CuSO4 → ZnSO4 + Cu	Blue solution	→	Colourless solution + Cu deposit	Displacement: Zn displaces Cu
Burning Mg ribbon 2Mg + O2 → 2MgO	Silvery-white ribbon	→	White ash (MgO) Dazzling flame	Combination / oxidation
Fe + dil. H2SO4 → FeSO4 + H2	Colourless acid	→	Light green solution (FeSO4)	Displacement reaction
Litmus in acid / base	Purple (neutral)	→	Red in acid Blue in base	Acid-base reaction (pH change)
MnO4- reduced (KMnO4 with reducing agent)	Purple / Violet	→	Colourless (Mn2+)	Redox — reduction of permanganate
Iodine + starch (test for starch)	Yellow-brown (iodine)	→	Blue-black colour	Iodine-starch complex forms

Common Indicators & Colour Changes

Indicator	In Acid	In Base / Alkali	Neutral
Litmus	Red	Blue	Purple
Phenolphthalein	Colourless	Pink / Red	Colourless
Methyl Orange	Red	Yellow	Orange
Universal Indicator	Red–Orange	Blue–Violet	Green (pH 7)

Tip: *Colour-change questions are direct 2-mark board questions. Always state BOTH before AND after colour plus the reason. E.g. 'Blue → White because water of crystallisation is lost on heating.'*