Describing O.C.s

1 Colour / smell of gases

Cl_2	very pale yellowish green gas
$Br_{2\,\Delta}$	brown gas
I_2	purple gas
NO_2	brown gas
SO_2	choking / pungent smell
NH_3	choking / pungent smell

requires heat (∵ Br_2 is liquid in room conditions)

} Toxic.
- If the exp. produces these gases, it should be performed in a fume cupboard.

2 Colour of salts (s)

A^+B^-

- both colourless in (aq) → usually white
- either one coloured → follow its colour
- both coloured → mix colours / choose more distinct colour

2 Observable changes

$X_{(s)} \rightarrow XY_{(aq)}$	X dissolves
$XY_{(aq)} \rightarrow Y_{(s)}$	<colour> solid deposits
$(aq)/(l) \rightarrow (g)$	<colour> bubbles evolve
$(aq)/(l) \rightarrow (aq)/(l)$	sol^n turns from <colour> to <colour>
$X_{(s)} \rightarrow XY_{(s)}$	<colour> solid turns <colour>
$(aq) \rightarrow (l)$ → 喷出 test tube	<colour> fumes evolve

3 Examples

$$2H^+_{(aq)} + Cu_{(s)} + H_2SO_{4(l)} \rightarrow Cu^{2+}_{(aq)} + SO_{2(g)} + 2H_2O_{(l)}$$

$Cu_{(s)} \rightarrow Cu^{2+}_{(aq)}$	copper dissolves → 另能说有什么 reactant, product 要用 colour + state形容
$\rightarrow Cu^{2+}_{(aq)}$	solution turns from colourless to blue
$\rightarrow SO_{2\,(g)}$	colourless gas bubbles evolve
$\rightarrow SO_{2\,(g)}$	choking smell

$$Ca_{(s)} + 2H_2O_{(l)} \rightarrow Ca(OH)_{2\,(s/aq)} + H_{2(g)}$$
(Ca(OH)$_2$: → only slightly sol. in water)

$Ca_{(s)} \rightarrow Ca^{2+}_{(aq)}$	calcium dissolves
$Ca_{(s)} \rightarrow Ca(OH)_{2\,(aq)}$	white solid deposits
$\rightarrow H_{2\,(g)}$	colourless gas bubbles evolve