

ANIONS

Anion	Test	Observation
Nitrate ion NO_3^-	- add aqueous sodium hydroxide and a small piece of aluminium foil - warm mixture	- ammonia gas released - turns damp red litmus paper blue
carbonate ion CO_3^{2-}	add dilute hydrochloric acid	- carbon dioxide is released - gas forms white precipitate when bubbled into limewater
chloride ion Cl^-	add dilute nitric acid, then add aqueous silver nitrate	white precipitate (silver chloride) formed
Iodide ion I^-	add dilute nitric acid, then add aqueous lead (II) nitrate	yellow precipitate (lead (II) iodide) produced
sulfate ion SO_4^{2-}	add dilute nitric acid, then add aqueous barium nitrate	white precipitate (barium sulfate) produced

GASES

gas	test	observation
oxygen O_2	place glowing splint into test tube	glowing splint relights
hydrogen H_2	place lighted splint at mouth of test tube	extinguishes with a 'pop' sound
carbon dioxide CO_2	bubble gas into limewater	white ppt formed (calcium carbonate)
sulfur dioxide SO_2	place paper soaked with acidified potassium manganate (VII) at mouth of test tube	paper turns from purple to colourless
chlorine Cl_2	place a damp blue litmus paper at the mouth of test tube	blue litmus paper turns red and is finally bleached white
ammonia NH_3	place a damp red litmus paper at the mouth of test tube	red litmus paper turns blue