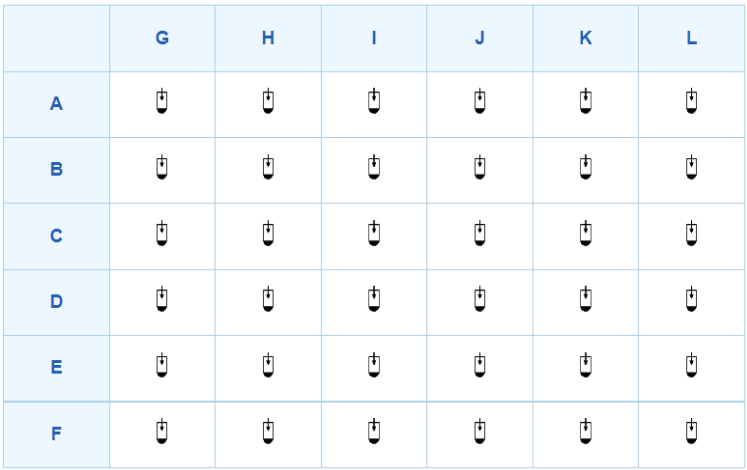
Qualitative Analysis of Inorganic Compounds

Identification of unknown compounds is an essential skill for a chemist. Through observation, experiments and analysis, chemists can make a chemical logical judgment on unknowns.

Click the link: http://www.tianenkeji.com/6matrix/index.html, a 6 × 6 unknown set will be presented as below. The unknowns are identified by the letters A through L. Clicking on the buttons allows you to observe reactions between the unknowns. Clicking on a letter around the edge will give a picture of the pure solution.



The unknowns A ~ F are solutions of heavy metal compounds which are among reagents 1~10 given here:

No.	1	2	3	4	5
Compound	$AgNO_3$	$BaCl_2$	$Cd(NO_3)_2$	$FeCl_3$	$FeSO_4$
Conc. (M)	0.5	0.2	0.2	0.2	0.2
No.	6	7	8	9	10
Compound	$Hg(NO_3)_2$	$MnCl_2$	$Ni(NO_3)_2$	$Pb(NO_3)_2$	$Zn(NO_3)_2$
Conc. (M)	0.2	0.2	0.2	0.2	0.2

The unknowns G ~ L are colorless and transparent solutions which come from the reagents 11~ 18:

No.	11	12	13	14
Compound	NaCl	NaBr	Na_2CO_3	Na_2SO_4
Conc. (M)	0.2	0.2	0.2	0.5
No.	15	16	17	18
Compound	NaOH	Na_2S	$K_2C_2O_4$	NH_3
Conc. (M)	0.2	0.2	0.5	2

Identify the compounds in the unknown matrix. Fill your determination on the answer sheet and write a balanced chemical reaction equation that is specific for clearly identifying this unknown compound.