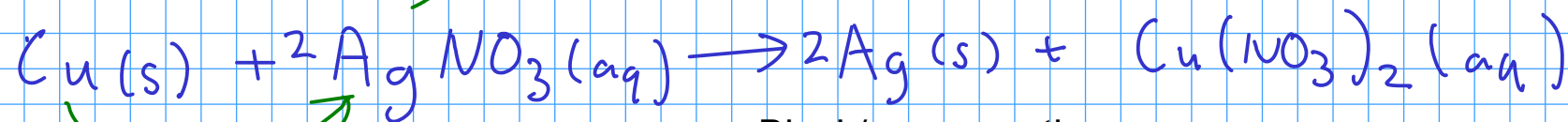


Example reactions

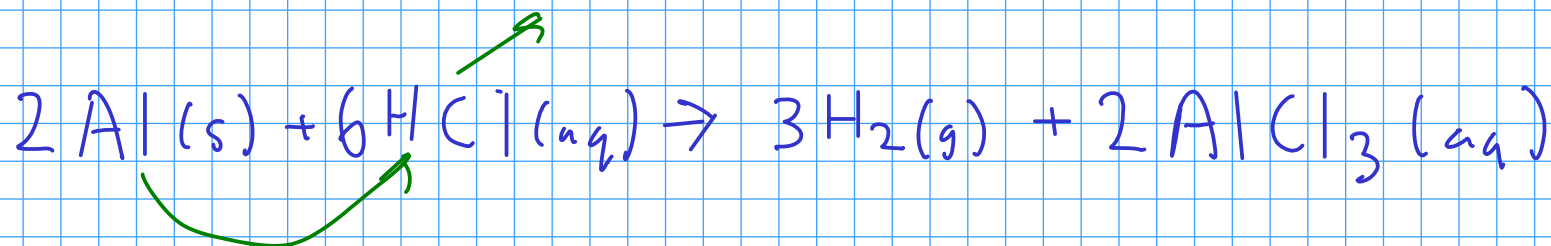
single replacement:



Black/grey growth on the surface of the copper metal.

With time, the growth appears more grey/silver than black

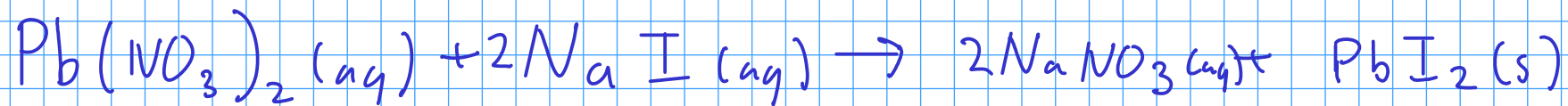
Copper(II) sulfate gives the remaining liquid a blue tint (similar to the blue color of the copper compound we used in the hydrates lab!



Initially, no sign of reaction (probably due to coating of aluminum oxide on metal surface)...

After some time, hydrogen bubbles appear. You need fairly concentrated acid for the reaction to start quickly.

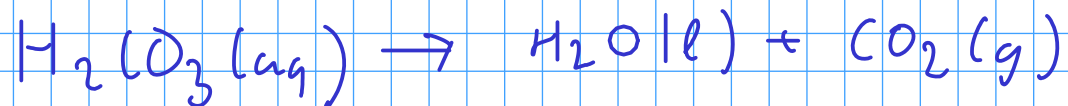
double replacement



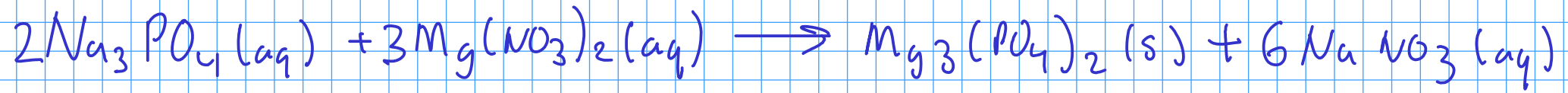
Formation of a bright yellow PRECIPITATE (solid), that first appears as cloudiness.



... but we observe the formation of lots of gas bubbles. What's happening?

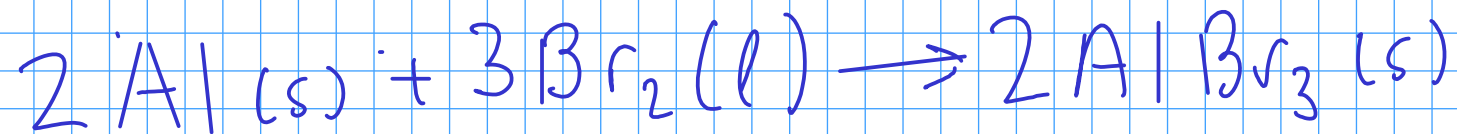


This reaction, a DECOMPOSITION, produces the gas bubbles we observe!



... a white, somewhat gel-like solid forms where the two solutions come into contact with one another.

Combination:



This reaction involves the transfer of electrons from aluminum to bromine, forming the ionic compound aluminum bromide.

This reaction produces a white solid product, but also releases much heat, giving rise to some of the other things we observe:

- ① Intense heat vaporizes the bromine, causing clouds of orange bromine smoke.
- ② Some unreacted aluminum gets hot enough to burn, causing showers of sparks
- ③ Some unreacted aluminum gets hot enough to melt, forming small balls of molten aluminum which melt through the glass beaker containing the reaction.