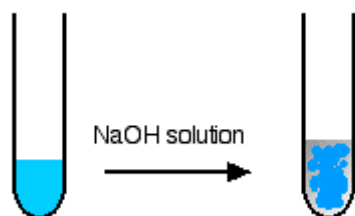


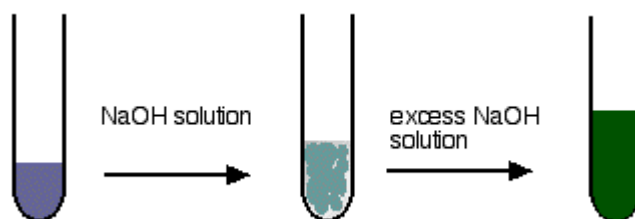
Chemguide – questions

COMPLEX IONS: REACTIONS OF HEXAAQUA IONS WITH OH⁻

1. The diagram shows the effect of adding sodium hydroxide solution to a solution of a metal ion.

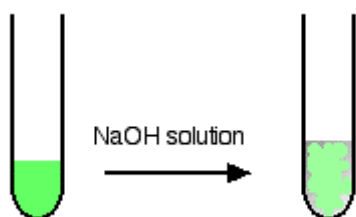


- Write the formulae of the metal complexes in each of the two tubes.
 - Explain how the sodium hydroxide solution has converted one into the other.
 - How would you convert the complex in the second tube back to the first one?
2. If you add sodium hydroxide to excess to a solution of another metal ion, the following happens:



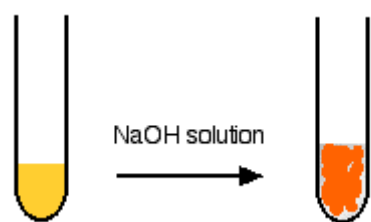
- Write the formulae of the metal complexes present in each of the three tubes.
 - Explain how the sodium hydroxide has reacted to give the contents of the two other tubes.
 - The precipitate in the middle tube is amphoteric. Explain what that means, and how you would demonstrate it.
3. Identify the metal present in each of the following reactions, and write the formulae for the hexaaqua ion and the product of the initial reaction with sodium hydroxide solution.

a)

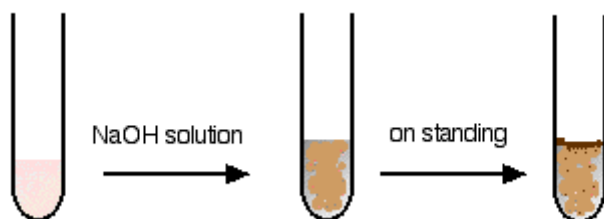


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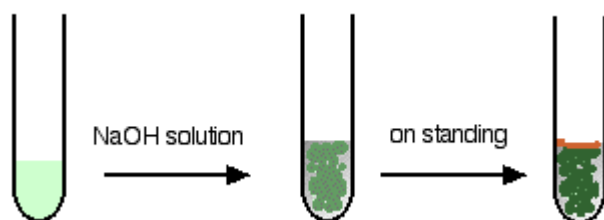
b)



c)



d)



e)

