



and the amount of ferric sulphocyanate be judged from the depth of colour of the solution, the reaction between equivalent quantities must be regarded as incomplete. The changes of colour are interpreted by the arrows in the last column, (indicating the direction of the reaction). —Note the agreement with Le Chatelier's law.

v. Further examples.

Bismuth chloride water. A bismuth solution is prepared as follows:— Commercial "bismuth trisnit." 40 g, hydrochloric acid (sp. gr. 1.175) 40cc; rub together in a mortar, as the powder cakes; a trifling residue may be filtered off. The reaction with water may be represented by the equation



To 50cc water add 5cc bismuth solution.....	→
Add 5cc hydrochloric acid (sp. gr. 1.175)	←
" 75cc water.....	→
" 5cc acid.....	←
" 200cc water.....	→
" 10cc acid.....	←
" 500cc water.....	→
Pour in acid from the bottle.....	←

Sulphuric acid and sodium chloride. (i) Concentrated sulphuric acid is poured into its own volume of a saturated solution of common salt in a test tube. The solution may be cooled under the tap and shaken, but usually a crystal of Glauber's salt must be added before crystallization will occur. The liquid is then poured off, and the crystals dried on a piece of unglazed pottery (flower-pot). (ii) If some of the sodium sulphate so prepared be covered with concentrated hydrochloric acid on a watch-glass it is at once changed to a fine powder of sodium chloride, which in turn may be freed from acid on the porous plate.

To demonstrate the change from chloride to sulphate and back again, mix a drop of the original salt solution with a little water on a piece of glass and warm till crystallization sets in; do the same with small portions of the sulphate and chloride formed in the experiment; the crystals of the two salts are very different in appearance. The equation is



Antimony chloride and hydrogen sulphide. An antimony solution is prepared by dissolving 2 g of tartar emetic in 15cc of hydrochloric acid (sp. gr. 1.175) and adding 85cc of water. This solution cannot be kept more than two or three hours as a precipitate of oxychloride is slowly formed.