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SODIUM PHOSPHATE

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Deputy Minister of Inland Revenue.

SIR,—I beg to hand you a report upon Sodium Phosphate, and Effervescent Sodium Phosphate.

Sodium Phosphate, otherwise known as *Sodii Phosphas* or *Di-sodium Hydrogen Phosphate*, or *Phosphate of Soda*, is one of the most widely used drugs of the pharmacopœia, and is thus described in the British Pharmacopœia, Edition 1914.

Characters and Tests. Transparent, colourless, rhombic prisms, efflorescent. Taste saline. Soluble in 7 parts of water, the solution being slightly alkaline to litmus. Yields the reactions characteristic of sodium and of phosphates. Five grammes dissolved in 50 millilitres of water require for neutralization not less than 13.9 millilitres of N 1 solution of sulphuric acid, a solution of methyl orange being used as indicator. Yields no characteristic reaction with potassium, ammonium, carbonates, or chlorides, and not more than the slightest reaction for sulphates. Lead limit 5 parts per million. Arsenic limit 5 parts per million.

In the present report, this article is represented by 144 samples.

Non-effloresced crystals of sodium phosphate contain 60.33 per cent of water, and 19.83 per cent of phosphoric acid (stated as phosphoric anhydride, P_2O_5 .)

The salt is highly efflorescent (i.e. loses water of crystallization in contact with air) and in consequence of this fact, its content in water is decreased and its content of phosphoric acid is proportionally augmented on prolonged keeping, unless proper precautions are taken. Thus, the loss of 5 per cent of water would cause the phosphoric acid content to be raised to 20.5 per cent nearly; while loss of 10 per cent water would raise the phosphoric content to 21.1 per cent. By artificial drying to loss of 50 per cent of its water of crystallization, the phosphoric acid content is raised to 28.4 per cent, and it is quite apparent that many of the samples herein reported have been desiccated so as to cause the loss of even more than 50 per cent of normal water of crystallization.

In the manufacture of effervescent sodium phosphate it is necessary to dry the sodium phosphate; and the pharmacopœia prescribes drying to the loss of about 60 per cent of the weight of the salt. This treatment renders it practically anhydrous; and its phosphoric acid content would then be raised to 50 per cent by weight.