SCHEDULE 2

METHODS OF ANALYSIS

PART I

15b.

DETERMINATION OF THE FINENESS OF GRINDING OF SOFT NATURAL PHOSPHATES

SCOPE

1. This method is for determining the fineness of grinding of soft natural phosphates.

FIELD OF APPLICATION

2. Soft natural phosphates.

PRINCIPLE

3. For samples of fine particle size, agglomeration may occur thus making dry sieving difficult. For this reason, wet sieving is normally used.

REAGENTS

4. Sodium hexametaphosphate solution, 1 g per 100 ml.

APPARATUS

5.—(5.1) Sieves with apertures of 0.063 mm and 0.125 mm respectively of standard ranges (diameter 20 cm, height 5 cm) and collecting containers.

(5.2) Glass funnel of 20 cm diameter mounted on a stand.

(5.3) Laboratory oven.

PROCEDURE

6. Wash both sides of the sieves with water and place the sieve with 0.125 mm apertures above the 0.063 mm sieve.

Weigh to the nearest 0.05 g, 50 g of the prepared sample and place on the top sieve. Sieve under a small jet of cold water (tap water can be used) until the water is practically clear when it passes through. Care should be taken to ensure that the flow of water is such that the lower sieve never fills with water. When the residue on the top sieve seems to remain more or less constant, remove this sieve, and place in the meanwhile on a collecting container.

Continue the wet sieving through the lower sieve for a few minutes, until the water passing through is nearly clear. Replace the 0.125 mm sieve over the 0.063 mm sieve. Transfer any deposit from the collecting container to the top sieve and begin sieving again under a small jet of water until this water becomes almost clear once more.

Quantitatively transfer each of the residues into a seperate 250 ml beaker by means of the funnel. Suspend each residue by filling the beakers with water. Allow to stand for about 1 minute and then

decant as much water as possible. Place the beakers in the oven (5.3) at 150°C for two hours. Allow them to cool, detach the residues with a brush and weigh them.

EXPRESSION OF RESULTS

7. Percentage of material passing sieve of 0.125 mm apertures = $(50 - M_1) \times 2$

Percentage of material passing sieve of 0.063 mm apertures = $[50 - (M_1 + M_2)] \times 2$

M_1 = weight in g of the residue on the 0.125 mm sieve

M_2 = weight in g of the residue on the 0.063 mm sieve.

The results are to be rounded up to the nearest unit.

REMARK

8. If the presence of lumps is observed after sieving the analysis should be carried out again in the following way:

slowly pour 50 g of the sample into a 1 litre flask containing 500 ml of the sodium hexametaphosphate solution, stirring continuously. Stopper the flask and shake vigorously by hand to break up the lumps. Transfer the whole suspension into the top sieve and wash the flask thoroughly. Continue the analysis as described under paragraph 6.