

SCHEDULE 2

METHODS OF ANALYSIS

1.

PREPARATION OF THE SAMPLE FOR ANALYSIS

1 SCOPE

1. The following procedure is to be used for the preparation of the sample for analysis, taken from the final sample.

2 PRINCIPLE

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2.1 Solid fertilisers: the preparation of a final sample received at the laboratory is a series of operations, usually sieving, grinding and mixing, carried out in such a way that:—

- (a) the smallest amount weighed out laid down by the methods of analysis is representative of the laboratory sample; and
- (b) the fineness of the fertiliser has not been changed by the preparation to the extent that its solubility in the various extractions reagents is appreciably affected.

2.2 Fluid fertilisers: the final sample is mixed by shaking to ensure that any insoluble matter, particularly crystalline material is thoroughly dispersed before each test portion is taken.

3 APPARATUS

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- 3.1 Sample divider (optional).
- 3.2 Sieves with apertures of 0.2 mm and 0.5 mm.
- 3.3 250 ml flasks, stoppered.
- 3.4 Porcelain pestle and mortar or grinder.

4 CHOICE OF TREATMENT TO BE USED

4. *Preliminary remark:* if the product is suitable, only a representative part of the final sample need be kept.

Final samples which must not be ground

4.1 Calcium nitrate, calcium magnesium nitrate, sodium nitrate, Chile nitrate, calcium cyanamide, nitrogenous calcium cyanamide, ammonium sulphate, ammonium nitrates of over 30% N, urea, basic slag, natural phosphate rendered partially soluble, precipitated dihydrated di-calcium phosphate, calcined phosphate, aluminium calcium phosphate, soft ground rock phosphate.

Final samples which must be divided and part of which must be ground

4.2 These are products in respect of which certain determinations are carried out without previous grinding (fineness of grinding for example) and other determination after grinding. They include all compound fertilisers containing the following phosphate ingredients: basic slag, aluminium calcium

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phosphate, calcined phosphate soft ground rock phosphate and natural phosphate rendered partially soluble. To that end, divide the final sample into two parts, which are as identical as possible, using a sample divider or by quartering.

Final samples in respect of which all determinations are carried out on a ground product

4.3 These are all the other fertilisers on the list which are not to be found under 4.1 and 4.2. The whole final sample shall be ground.

5 METHOD

5. The part of the final sample referred to under 4.2 and 4.3 is sieved rapidly through a sieve with apertures of 0.5 mm. The residue is ground *roughly* so as to obtain a product in which there is a minimum of fine particles, and it is then sieved. The grinding must be done in conditions such that the substance is not appreciably heated. The operation is repeated as many times as is necessary until there is no residue, and it must be effected as quickly as possible in order to prevent any gain or loss of constituents (water, ammonia). The whole ground and sieved product is placed in a non-corrodible container provided with an air-tight closure.

Before any weighing is carried out for the analysis, the whole sample must be thoroughly mixed.

6 SPECIAL CASES

Fertilisers comprising a blend of several categories of crystals

(a) In this case, separation frequently occurs. It is therefore *absolutely* essential to crush and pass the sample through a sieve with apertures of 0.2 mm (for example, mixtures of ammonium phosphate and potassium nitrate). The grinding of the whole of the final sample is recommended in the case of these products.

Residue which is difficult to grind and does not contain fertilising substances

(b) Weigh the residue and take account of its mass when calculating the final result.

Products which decompose on heating

(c) Grinding must be carried out in such a way as to avoid any heating. It is preferable in this case to use a mortar for grinding (for example, compound fertilisers containing calcium cyanamide and urea).

Products which are abnormally moist or made into a paste by grinding

(d) To ensure homogeneity, a sieve is to be chosen which has the smallest apertures compatible with the destruction of lumps by hand or with the pestle. This may be the case of mixtures, certain ingredients of which contain water of crystallisation.

7 FLUID FERTILISERS

7. Mix thoroughly by shaking, ensuring that any insoluble matter, particularly crystalline material, is thoroughly dispersed, immediately before drawing a portion of the sample of analysis.