

PROCEDURE FOR DRAWAL OF SAMPLES OF FERTILISERS

SCHEDULE – II Part – A

General requirement of sampling

In drawing samples the following measures and precautions should be observed.

- a) Samples shall not be taken at a place exposed to rain / sun.
- b) The sampling instruments should be clean and dry.
- c) The fertiliser being sampled, the sampling instruments and the bags of samples should be free from any contamination.
- d) To draw a representative sample the contents of each bag selected for sampling should be thoroughly mixed.
- e) The sample should be kept in suitable clean dry and air tight glass or screwed hard polythene bottle of about 400 gm capacity or in a thick gauged polythene bag. This should be put in a cloth bag which may be sealed with the Inspector's seal after keeping inside the detailed description as specified in Form – P.

Identifiable details may be put on the cloth bag such as:

- (1) Date of sampling
- (2) Name of the fertilizer
- (3) Code No. of sample

Sampling from bagged materials:

(i) Scale of sampling

(a) Lot (for Manufacturers / Importers)

(i) All bags in a single consignment of the material of the same grade and type drawn from a single hatch of manufacturer / importer shall constitute a lot.

(ii) If consignment is declared to consist of different batches of manufacturer / importer all the bags of each batch shall constitute a separate lot.

(iii) In the case of a consignment drawn from a continuous process 2000 bags or 100 tonnes of the material shall constitute a lot.

(b) Lot (for dealer)

(i) The lot is an identifiable quantity of the same grade and type of fertilizer stored in an identifiable place subject to a maximum limit of 100 tonnes.

(ii) The stock of less than 100 tonnes with a dealer may also constitute one or more lot. If the fertilizer of different sources and brand is available in such quantities, the lot shall be identified by the Inspector based on visible appearance of bags, their packing and storage conditions.

The fertilizer bags are segregated fertilizer wise, manufacturer/importer wise, batch wise, and month and year of manufacture/import. One sample shall not normally represent the quantity exceeding 100 tonnes.

(c) Selection of bags for sampling

(i) The number of bags to be selected from a lot shall depend upon the size of the lot as given below:

Lot Size (No. of bags) (N)	No. of bags to be selected for sampling (n)
Upto 10	1
11-100	2
101-200	3
201-400	4
401-600	5
601-800	6
801-1000	7
1001-1300	8
1301-1600	9
1601-2000	10

The bags are normally stored in different layers and height, both in storage godown and shops, but if scattered should be first arranged in a systematic manner. Start counting from any bag randomly as 1,2,3,4..... upto r. 'r' being equal to the integral of N/n . Every r^{th} bag thus counted should be demarcated and withdrawn from the stock and sample shall be drawn only from those selected bags to prepare the composite sample.

For example there are 450 bags constituting a lot in a dealer shop

$$r = \frac{N}{n} = \frac{450}{5} = 90$$

Therefore every 90th bags should be taken out. Thus only 5 bags will be taken out and sample drawn from each bag and finally made one composite sample.

(ii) Sampling from big godown / high stackings

If the procedure given above that is r^{th} bag method is not possible to be adopted, the sample should be drawn from the randomly selected fertilizer bags from different layers from top and from all open sides in a zig zag manner.

(iii) Sampling from small godown

All the fertilizer bags of the same grade and type of same manufacturer / importer received on different dates shall be segregated and properly stacked. In case of batch wise product i.e., SSP, NPK (M), NPK (GM), MNF, MNFM, organic, Bio and Non-edible Deoiled Cakes, same grade and type of same batch no. of same manufacturer should be segregated and assigned a lot and draw sample.

Sampling Instruments:

- a) Sampling probe: The probe may comprise of a slotted single tube with solid cone tip made of stainless steel or brass. The length of the probe may be approximately 60 to 65 cm, the diameter is 1.5 cm, and the slot width may be 1.2 to 1.3 cm.
- b) Sampling cup: The inside dimensions of cup mouth may be 2 x 25 cm, the height of cup is 6 1/2 inches
- c) Sampling probe a slotted double tube length is 4-1/2 -5 feet and diameter 1-1/4 to 1-1/2 inch (closed vertical tube).
- d) Sampling scoop: Samples from the hatch can also be collected by a suitable scoop made of stainless steel or brass.

These are available in the local market otherwise fabricated.

Drawal of samples from bags:

(i) In case where the bag and fertilizer allows the use of sampling probe, following method may be used.

- a. Place bag in horizontal position and mix thoroughly the content of the bags by jerking / rolling upside and down.
- b. Make an X cut with a knife near at the corner.
- c. With single tube probe insert diagonally from corner to corner with slot in down position. Turn it to bring the slot upwards to fill the probe and remove carefully so as not to drag material out of it with the bag edges.
- d. Empty the probe on a clean dry and hard surface preparably polythene sheet.
- e. Similarly repeat the process from other end of the bag, draw sample from each selected bag and put all the sample material at one place.

(ii) In case of High density polythene bags and also when the fertilizer material is not in free flowing condition and having big and hard lumps the use of probe is not possible. In such cases following method is used.

- a. Open the selected bags
- b. Take out the fertilizers from the bag on a level, put in a clean and hard surface
- c. Mix thoroughly and reduced by quartering method.
- d. Draw sample with the help of a suitable sampling device made of stainless steel or brass cup / scoop

(iii) Quartering Method

If the composite sample collected from the different selected bag is larger than required weight, it shall be reduced by method of quartering as detailed below.

Spread the composite sample on a level, clean hard surface or polythene sheet, flatten it out and divide it into four equal parts. Remove any diagonally opposite parts. Mix the two remaining parts together to form a cone, flatten out the cone and repeat the operation of quartering till a composite sample of required weight is obtained.

(iv) Weight of the sample

One sample of fertilizer shall have the approximate weight as follows:

- a. For straight micronutrient fertilizers: 100 gm
- b. Chelated MNF & MNFM: 50 grms or the minimum packing size of similar quantity
- c. For other fertilizer & mixtures: 400 grms

Preparation of test sample and reference sample:

(i) The composite sample obtained above shall be divided into three approximately equal portions each of the weight as specified above. Each of these samples shall constitute the test sample.

(ii) Each test sample shall be immediately transferred to a suitable container or thick polythene bag. The detailed sample information in Form P kept in the cloth bag then sealed with the seals of the inspector. If possible seal of the manufacturer / importer / dealer as the case may also be affixed.

(iii) out of three sealed samples, one sample shall be sent to the Incharge of the Fertiliser Testing Laboratory within 7 days, including the date of sampling. (sample should be dispatched within 7 days).

Another sample should be given to manufacturer / importer / dealer as the case may be along with a copy of the Form J.

The Fertiliser Inspector has to send the third sample to the Higher Authority for keeping in safe custody.

Any of the latter two samples may be sent for referee analysis as provided for under Sub-clause (2) of Clause 29B.

Sampling from Hatch

Most of the imported fertilizer imported as bulk condition in ships.

In case of bulk fertilizer from each hatch at least 10-15 samples should be drawn from different depths and points during unloading operations. All the samples drawn from each hatch of the ship, bulk carrier or bulk container, truck, to mix together to make hatch composite and all the hatch composite take some portion and mix and prepare ship composite using quartering method.

Sampling from bulk carriers – trucks

The sample can be drawn as per vertical probing procedure with the help of closed vertical double tube probe. Draw 10 vertical cuts from the following locations relating to the entire top of the conveyance. The 10 vertical cores are combined into a composite sample

Sampling from bulk materials in storage

The bulk storage piles (level or flat) upto 100 tonnes could be sampled. Take 10 cores to the maximum possible depth of the probe from the position mentioned below the figure and all the cores are composited. (using vertical double tube closed probe).

Preparation of documents:

After preparation of composite sample, fill up Form- J in duplicate, Form-P in triplicate. The Form – J should be signed by the dealer / manufacturer / importer as the case may be or his authorized persons and also signed by the Fertiliser Inspector. Fill up the Form-K . Then the sample has to be sent by the Inspector to the Fertiliser Testing Laboratory alongwith Form-K within 7 days i.e., including the date of sampling.

Check points during sampling

- a) Make sure that sampling instruments and bags are clean.
- b) Segregate the fertilizer bags lot wise before sampling
- c) Select requisite number of bags for sampling according to lot size.
- d) In case of high stack, select bags from all directions, different layers and depth by randomly.
- e) Mix the content of the bag thoroughly before sampling.
- f) Always insert the probe diagonally from two sides of the bag placed horizontally with slot in downside.
- g) If quantity is more, reduced the composite is done by only quartering method and divided in 3 equal parts.
- h) The sample should be kept in airtight condition.
- i) The cloth bag should be marked as follows
 - (i) Date of sampling (ii) Name of fertilizer (iii) Code no. of sample
- j) Form-P signed by the inspector and should be kept inside the cloth bag
- k) The cloth bag should be sealed by the inspector. If possible the dealer seal also is affixed.
- l) Prepare Form-J in duplicate (2 copies)
- m) Form-J signed by the Inspector and get signature from dealer or on behalf his authorized person.
- n) One sample and copy of the Form –J handed over to dealer.
- o) Another sample sent to the Laboratory along with Form –K within 7 days of its drawal
- p) The third sample should be handed over to the next higher authority of the inspector and get acknowledgement
- q) Use appropriate sampling instruments
- r) Never draw one sample from a stock more than 100 tonnes or 2000 bags.
- s) Never mix the fertilizer of different batch nos . /different manufacturers.
- t) Never select the bags for sampling less than the number required as per the procedure.
- u) Never try to reduce the weight of composite sample by any other method other than quartering.
- v) The weight of each test sample should not be less than required weight.
- w) Don't use sampling probe in HDPE packing
- x) Fill up Form-J, Form-P and Form-K correctly.