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**Fluid fertilizers — Preliminary visual  
examination and preparation of samples for  
physical testing**

*Engrais liquides — Examen visuel préliminaire et préparation des  
échantillons pour essais physiques*

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## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10249 was prepared by Technical Committee ISO/TC 134, *Fertilizers and soil conditioners*, Subcommittee SC 3, *Physical properties*.

Annex A of this International Standard is for information only.

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International Organization for Standardization  
Case postale 56 • CH-1211 Genève 20 • Switzerland  
Internet central@isocs.iso.ch  
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

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# Fluid fertilizers — Preliminary visual examination and preparation of samples for physical testing

## 1 Scope

This International Standard specifies both a procedure for preliminary examination of a single sample as received for testing, and a procedure for preparing a test sample by blending and reduction of a series of samples representative of a consignment or a bulk delivery of fluid fertilizer.

NOTE — This complements the corresponding standard for solid fertilizers (ISO 8358).

## 2 Requirements

### 2.1 General

It is essential that the physical examination and any physical tests of fluid fertilizers be made as soon as possible after sampling because of their sensitivity to both time and temperature.

### 2.2 Condition of container

Any defects in the laboratory sample container or any visible leakage shall be recorded. If it is possible that the contents have been affected, the sample shall be rejected.

### 2.3 Opening of container

All packing materials (e.g. sawdust) and other debris shall be removed from the outer surface of the container, particularly around the closure. The container shall be opened carefully so as not to disturb the contents. The examination shall be carried out as rapidly as possible so as to minimize possible evaporation losses.

## 3 Procedure

### 3.1 Procedures for solutions

#### 3.1.1 Visual examination

##### 3.1.1.1 Ullage

Record the approximate ullage (i.e. the air-space in the container above the contents of the container), expressed as a percentage of the total capacity of the container.

##### 3.1.1.2 Surface

Record the presence of any films or incrustations and their extent. For analytical control purposes, when incrustation or surface matter is present it may be necessary to disperse it and include it in the sample for testing.

##### 3.1.1.3 Separation of phases

Record any separation of the sample into phases, noting the volume and nature of these phases (see 3.2.1.5).

##### 3.1.1.4 Clarity

Record the clarity, colour and temperature of the sample.

### 3.1.1.5 Consistency

Record whether the sample is free flowing or gelled.

### 3.1.1.6 Extraneous matter

Record the presence and nature of any extraneous matter in the sample. Remove it as carefully as possible.

## 3.1.2 Mixing

Mixing may be inappropriate if the sample has been submitted for physical assessment. Otherwise shake it or stir thoroughly.

## 3.2 Procedures for suspensions

### 3.2.1 Visual examination

Steps 3.2.1.1 to 3.2.1.5 shall be carried out with the minimum of disturbance to the sample.

#### 3.2.1.1 Ullage

Record the approximate ullage (i.e. the air-space inside the container above the contents of the container), expressed as a percentage of the total capacity of the container.

#### 3.2.1.2 Surface

Record the presence of any films or incrustations and their extent. For analytical control purposes, when incrustation or surface matter is present it may be necessary to disperse it and include it in the sample for testing.

#### 3.2.1.3 Separation of phases

Record any separation of the sample into phases, and record the description of these phases.

#### 3.2.1.4 Consistency

Record whether the sample is free flowing or gelled and note its temperature.

#### 3.2.1.5 Settling

Record the type of settling (e.g. soft, hard or hard-dry). If the settling is hard and appears dry and crumbly inside a lump when cut with a clean spatula, describe it as "hard-dry".

#### 3.2.1.6 Extraneous matter

Record the presence and nature of any extraneous matter in the sample. Remove it as carefully as possible.

### 3.2.2 Mixing (where appropriate)

#### 3.2.2.1 Limitations

Samples which have gelled or show hard-dry settling (see 3.2.1.4 and 3.2.1.5) cannot be effectively re-incorporated or homogenized and may not be suitable for testing purposes.

#### 3.2.2.2 General

During all the operations specified in 3.2.2.3 and 3.2.2.4, care shall be taken to ensure minimum loss of the aqueous phase. For this purpose, all operations shall be carried out as rapidly as practicable, consistent with satisfactory mixing.

#### 3.2.2.3 Samples without hard settling

Mix the sample thoroughly, even if there is no perceptible settling. If the sample is small enough, a spatula is suitable, but for a larger sample a stouter stirrer is needed. Then firmly replace the lid of the container and thoroughly shake the contents, inverting the container as this is being done. Repeat the alternate stirring and

shaking until the contents are completely homogeneous. As an added precaution, it is recommended that the mixing be completed by pouring the contents into a clean, dry and transparent container and back again several times. At all times during the sample preparation avoid, as far as possible, entrainment of air. The sample shall be free from air-bubbles before use.

#### 3.2.2.4 Samples with hard settling

If it is required to complete the examination of a sample in which hard settling has occurred (but not hard-dry settling; see 3.2.2.1), proceed as follows.

Pour all the fluid medium into a clean, dry and transparent container. Remove the sediment from the bottom of the container with a spatula and mix thoroughly. When a uniform consistency has been achieved, return the fluid to the original container, a small portion at a time, carefully mixing each addition before the next is made. Complete the re-incorporation by pouring the mixture from one container to another several times (see 3.2.2.3). The sample shall be free from air-bubbles before use.

#### 3.2.3 Blending and reduction of a series of samples

In cases where a series of samples or increments have been taken from a homogeneous product, they may be tested either separately or combined to produce an aggregate sample.

After thoroughly mixing each sample, pour or otherwise transfer the samples into a clean, dry, transparent container of suitable size and thoroughly mix them by stirring, shaking, etc. When the mixed aggregate sample appears to be homogeneous, take a reduced sample in one or more clean, dry transparent containers, allowing at least 5 % ullage. Close, label and, if necessary, seal the containers. In the case of photosensitive products, protect the container from light.

### 4 Labelling of sample containers

State the following particulars on the label of the sample container:

- a) the name of the manufacture or blender and a description of the product;
- b) the date of manufacture or blending;
- c) the consignor;
- d) the size and particulars of the consignment;
- e) the place of sampling; the date of sampling; the name of the sampler;
- f) the reference number or numbers of the batch, and particulars of the storage tank, drum container or containers, etc. from which the sample or samples have been drawn;
- g) a reference to this International Standard or an equivalent national standard.

NOTE — If the sample is dispatched to another laboratory, a delivery note should be sent with it repeating the details given on the label and also, if necessary, a report of the preliminary examination (see clause 5).

### 5 Sample test report

The sample test report shall contain at least the following information:

- a) a description of the sample, as indicated on the label (see clause 4);
- b) a reference to this International Standard or an equivalent national standard;
- c) appearance, clarity, etc. of the sample;

- d) a description of any incrustation, etc. observed;
- e) a description of any settling observed, and of the mixing and re-incorporation procedure adopted, if necessary;
- f) other preliminary observations;
- g) date of examination and name of examiner.

NOTE — Further details about the presentation of sampling reports are given in ISO 5306.

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