

INTERNATIONAL  
STANDARD

ISO  
7409

Second edition  
2018-03

---

---

**Fertilizers — Marking — Presentation  
and declarations**

*Engrais — Marquage — Présentation et mentions à déclarer*

STANDARDSISO.COM : Click to view the full PDF of ISO 7409:2018



Reference number  
ISO 7409:2018(E)

© ISO 2018

STANDARDSISO.COM : Click to view the full PDF of ISO 7409:2018



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

	Page
<b>Foreword</b>	iv
<b>1 Scope</b>	1
<b>2 Normative references</b>	1
<b>3 Terms and definitions</b>	1
<b>4 Principle</b>	1
<b>5 General requirements</b>	1
<b>6 Types of marking</b>	2
<b>7 Pre-marked containers</b>	2
7.1 Containers holding more than 25 kg (or 25 l) of fertilizer	2
7.1.1 Marking technical details	2
7.1.2 General instructions for the size of characters	2
7.1.3 Sizes of characters for declarations	2
7.2 Containers holding from 5 kg to 25 kg (or 5 l to 25 l) of fertilizer	3
7.3 Containers holding less than 5 kg (or 5 l) of fertilizer	3
<b>8 Bulk fertilizers</b>	3
<b>9 Examples of declarations</b>	3
<b>Annex A (informative) Example of package marking</b>	6
<b>Annex B (informative) Example of directions for use</b>	7
<b>Annex C (informative) Example of package</b>	9
<b>Annex D (informative) Example of labelling for an EC fertilizer</b>	10
<b>Annex E (informative) Example of labelling for a Canadian fertilizer</b>	11
<b>Bibliography</b>	12

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 134, *Fertilizers and soil conditioners*.

This second edition cancels and replaces the first edition (ISO 7409:1984), which has been technically revised. The main changes compared to the previous edition are as follows:

- bulk fertilizers have been included;
- the general requirements have been further developed;
- examples of marking and labelling of fertilizers as well as directions for use have been added, together with a brief summary of related instructions in the Bibliography;
- the types of marking have been illustrated and expanded;
- more elements such as directions for use and warning statements related to safety have been introduced into the declarations.

# Fertilizers — Marking — Presentation and declarations

## 1 Scope

This document specifies the procedure for marking containers or labels for fertilizers.

This document is applicable to all fertilizers in containers or bulk.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Principle

Establishment of the label size, the position of the declarations and the size of the characters (letters and figures) so as to enable the user to identify the fertilizer and to determine its characteristics. These details will vary according to whether the container holds:

- more than 25 kg (or 25 l) of fertilizer,
- from 5 kg to 25 kg (or 5 l to 25 l) of fertilizer,
- less than 5 kg (or 5 l) of fertilizer, or
- bulk fertilizer.

See [Figures A.1, C.1](#) and [E.1](#) for examples of marking and labelling.

NOTE Ton bags are usually considered as bulk fertilizer.

## 5 General requirements

- 5.1 Declarations shall be legible and indelibly marked on a uniform and contrasting background.
- 5.2 Any declarations on the marking should be truthful, accurate and extremely clear.
- 5.3 False, deceptive, exaggerated, untruthful or misleading claims shall not be made on the product packaging or label.
- 5.4 The smallest letters used in declaration or marking shall be clear, firm and readable.

## 6 Types of marking

Marking can take the form of package markings, quality assurance documents, labels, electronic labels, etc. The information can be added to bags by printing, labels, stickers, etc. The use of electronic labels, such as two-dimensional (2D) codes, is encouraged. Electronic labels should be legible and conspicuous on a discrete area of the principal display panel and shall include, at a minimum, the information related to package markings.

## 7 Pre-marked containers

### 7.1 Containers holding more than 25 kg (or 25 l) of fertilizer

#### 7.1.1 Marking technical details

**Position:** A rectangular space for marking shall be located in the centre of one of the main faces of the container/label. The edges of the space shall be parallel to the edges of the container.

**Measurement:** Its edges shall be at least 65 % of the length of the container. The total area for marking shall be at least 10 % of the face selected.

**Label information:** The technical information of the label on the container should be easy to read. Any picture, brand or logo used in the marking should not obstruct the quick identification of text messages. Declarations shall be marked within the above-mentioned area.

It is recommended that the type and grade be also marked on the sides or gussets of non-rigid containers.

NOTE The front side of the container often contains the brand or logo.

#### 7.1.2 General instructions for the size of characters

Three sizes of characters shall be used, according to the area of the space for marking (7.1.1), so that the information can be set out clearly. These three sizes shall be in a ratio X/Y/Z, which may vary only within the limits indicated in [Table 1](#).

The size of lower-case characters shall be determined by the height of the letters without a down stroke (for example, e, o, u, n).

The height of the upper-case characters shall be typographically consistent with the height of the lower-case characters.

**Table 1 — Ratio of the three sizes of characters**

Size of the smallest letters mm	Ratio of sizes small (X), medium (Y), large (Z)	
	minimum ratio	maximum ratio
≤ 9	1/2/4	1/3/9
> 9	1/1,5/3	1/2,5/7

#### 7.1.3 Sizes of characters for declarations

Declarations shall be printed in characters corresponding to the type sizes given in [Table 2](#).

**Table 2 — Size of characters for declarations**

Declaration	Small X	Characters	
		Medium Y	Large Z
“Fertilizer”		•	
Type and grade		•	•
Composition	Nutrient content(s)	•	
	Form(s) and/or solubility(ies)	•	
	Size distribution	•	
Nutrient release period <sup>a</sup>	•	•	
Mass or volume		•	•
Name and address of the person or organization responsible for marking	•	•	
Directions for use	•	•	
Warning statements related to safety	•	•	
Other requirements	•	•	

<sup>a</sup> Only applies to slow-release fertilizers and controlled-release fertilizers.

## 7.2 Containers holding from 5 kg to 25 kg (or 5 l to 25 l) of fertilizer

All the requirements specified in [7.1](#) shall be followed.

## 7.3 Containers holding less than 5 kg (or 5 l) of fertilizer

If the dimensions and the shape of the container permit it, the space for marking shall have a minimum size of 120 mm × 70 mm. All the other requirements specified in [7.1](#) shall be followed, with the exception of the minimum/maximum size ratios given in [7.1.2](#), which should be approximated.

## 8 Bulk fertilizers

Marking may take the form of adhesive or similar labels, tie-on labels, etc., with appropriate size. The requirements specified in [Clause 7](#) shall be followed.

## 9 Examples of declarations

**9.1** The following declarations are examples of what may appear on containers or labels and are given for guidance:

- “FERTILIZER” ([9.2](#))
- type and grade of fertilizer ([9.3](#))
- composition ([9.4](#))
- net mass or volume ([9.5](#))
- name and address of the person or organization responsible for marking ([9.6](#))
- directions for use ([9.7](#))
- warning statements related to safety ([9.8](#))

For more examples, see [Annexes A](#) to [E](#).

**9.2** The word “FERTILIZER” supplemented, as necessary, by any regulatory qualification.

**9.3** The type and grade of fertilizer and, if necessary, its physical form (for example granular).

It is advisable that the name of the fertilizer be followed by a simplified indication of the nutrient content.

EXAMPLE 1

NP fertilizer 18-46

NPK fertilizer 12-15-18

In a compound fertilizer containing only two of the elements N, P and K, the absence of the third element may be indicated by a zero.

EXAMPLE 2

NK fertilizer 14-0-40

NP fertilizer 18-46-0

If it is desired to include the usual name of the fertilizer, which is different from the common name, it should appear on the face of the container or the label where the declarations described in [9.2](#) to [9.8](#) appear. [The face of the container/label with the brand or logo (key information) is designated as the front side.]

EXAMPLE 3

Ammonium phosphate 18-46 (for which the common name would be NP fertilizer 18-46)

**9.4** The composition of the fertilizer, i.e.

- Nutrient content(s);
- Form(s) and/or solubility(ies);
- Fineness of grind, if appropriate.

With respect to the expression of form(s) and solubility(ies), the following rules should be followed.

a) If an element occurs in only one form or solubility, which is the whole of its declarable content, its form and solubility should be indicated after the content.

EXAMPLE 1

15 % of ammoniacal nitrogen (N)

Ammoniacal nitrogen (N) – 15 %

15 % N ammoniacal nitrogen

EXAMPLE 2

40 % of phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>) soluble in neutral ammonium citrate

Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>) soluble in neutral ammonium citrate = 40 %

40 % P<sub>2</sub>O<sub>5</sub> phosphorus pentoxide soluble in neutral ammonium citrate

- b) If an element is present in several forms or solubilities, each value should be set out under "declared value", in smaller characters (see [7.1.3](#)).

EXAMPLE 3

X % TOTAL OF THE DECLARED VALUE including

(I)  $m$  solubility 1 or form 1

$n$  solubility 2 or form 2

or

(II)  $m$  % solubility 1 or form 1

$n$  % solubility 2 or form 2

To avoid any ambiguity, it is recommended that version (I) be adopted.

If a solubility included in the declared total includes another solubility, the value of the latter should also be declared, as described above.

**9.5** The net mass or volume of fertilizer.

For example, National Institute of Standards and Technology (NIST) packaging standards require the net weight statement to be bold, clear and conspicuous, in a colour that contrasts with the background, and parallel to the base of the package in the lower 30 % of the principal display panel. They do not allow words or phrases that qualify the amount, such as "approximately".

**9.6** The name and address of the person or organization responsible for marking.

**9.7** Directions for use: indications of the dose rates and conditions of use suitable for the soil and crop conditions under which the fertiliser is used. More detailed information may be recorded on the labels, or the channels through which detailed information can be found may be indicated, e.g. on the company websites, pamphlets or brochures.

**9.8** Warning statements related to safety, e.g. phrases of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

## Annex A

### (informative)

#### Example of package marking

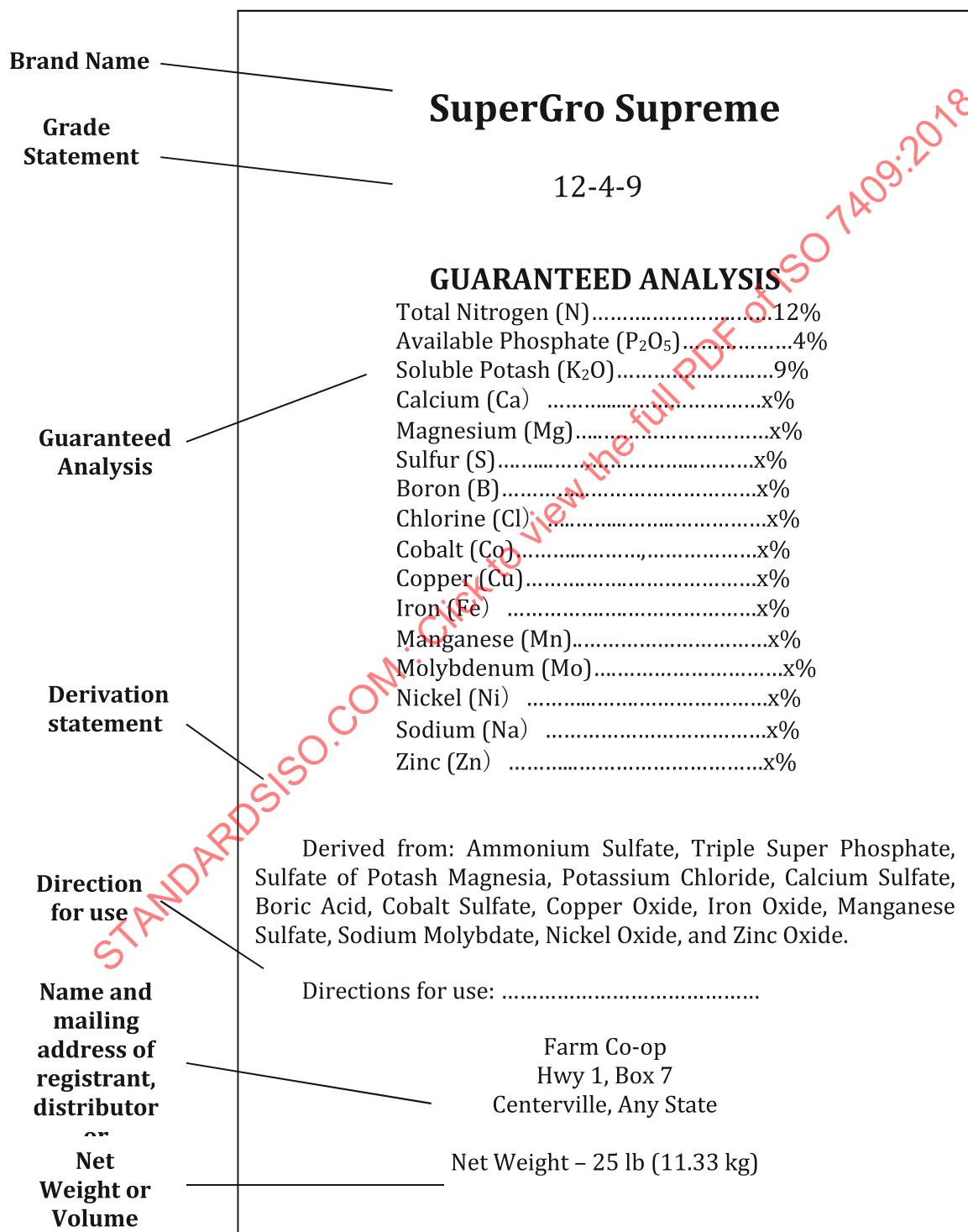


Figure A.1 — Example from AAFPCO label guide

## Annex B (informative)

### Example of directions for use

#### B.1 Text

- a) Fertigation (such as sprinkle irrigation, trickle irrigation, etc.)

Application rate: 0,125 % to 0,067 %, 0,17 kg to 0,33 kg per acre.

Application timing: every 7 to 10 days. (For flood irrigation, the application rate should be raised accordingly.)

- b) Foliar spray

Application rate: 0,1 % to 0,05 %, 15 g to 20 g per sprayer (15 l).

Application timing: every 7 to 10 days.

This information is also contained in [Table B.1](#).

#### B.2 Table

**Table B.1 — Applicable crops and fertilization instruction**

Crop	Crop Recommended	Application period	Application rate and method	Effect
Fruit trees	Lychee ( <i>Litchi chinensis</i> Sonn.), etc.	During fruiting period	Foliar spray: 0,1 % to 0,05 %, every 7 to 10 days	Prevent fruit dehiscing, prevent blossom-end rot, enhance fruit colouring, increase the saccharinity, increase fruit size, improve the colour and lustrousness of the fruit
	Banana, etc.			
	Peach, etc.			
	Grape, etc.			
Melons and vegetables	Watermelon, etc.	Through mid and late growth stage	Fertigation: 0,125 % to 0,067 %, every 7 to 10 days	Increase the saccharinity, increase fruit size, improve the colour and lustrousness of the fruit
	Tomato ( <i>Solanum lycopersicum</i> L.), etc.			
Cash crops	Green bean ( <i>Phaseolus vulgaris</i> Linn.), etc.	Through mid and late growth stage	Fertigation: 0,125 % to 0,067 %, every 7 to 10 days	Increase the saccharinity, increase fruit size, improve the colour and lustrousness of the fruit
	Tobacco ( <i>Nicotiana tabacum</i> L.), etc.			
	Ginseng ( <i>Panax ginseng</i> C. A. Mey.), etc.			

#### B.3 Recommendations

The dosage and application rate of the fertilizer should be decreased according to the situation, e.g. during the seedling stage or in case of drought, frost or other adverse weather conditions.

This fertilizer is generally compatible with pesticides. However, it should not be mixed with strongly alkaline pesticides.

Before mixing, take a small portion of fertilizer to test its compatibility with mixed materials and irrigation water.

Once opened, the product should be used as soon as possible. If the product cakes due to moisture absorption, it can still be usable if the quality has not been affected.

There is no specific requirement for the region or the soil condition. Users should determine the dosage, method and timing of fertilizer application according to the situation, such as crops, soil, and weather conditions. Refer to the recommendation of the local soil and fertilizer department, or call the service hotline, if there is any doubt.

STANDARDSISO.COM : Click to view the full PDF of ISO 7409:2018

## Annex C

(informative)

### Example of package



Figure C.1 — Agroblen®<sup>1)</sup> Total fertilizer package

1) Agroblen® is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.

## Annex D (informative)

### Example of labelling for an EC fertilizer

Compound fertilizer in granular form

“FERTILIZER” (Brand Name)

EC FERTILIZER

NPK Fertilizer (Ca) (S)

7 - 14 - 25 (2) (14) (Grade Statement)

(Guaranteed Analysis)

7 % of total nitrogen (N)

7 % of ammoniacal nitrogen (N)

14 % of phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>)

soluble in neutral ammonium citrate and in water

13,1 % of water-soluble phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>)

25 % of water soluble potassium oxide (K<sub>2</sub>O)

2 % of water-soluble calcium oxide (CaO)

14 % of total sulfur trioxide (SO<sub>3</sub>)

11,5 % of water-soluble sulfur trioxide (SO<sub>3</sub>)

25 kg net (Net weight)

Company Name

Address

Store in a dry place. Protect from sunlight. (Directions for use)

STANDARDSISO.COM : Click to view the full PDF of ISO 7409:2018