

norm**NEN-EN 15587**

Granen en graanproducten - Bepaling van
Besatz in tarwe (*Triticum aestivum* L.),
harde tarwe (*Triticum durum* Desf.), rogge
(*Secale cereale* L.) en gerst (*Hordeum*
vulgare L.)

Publicatie uitsluitend voor commentaar

Cereal and cereal products - Determination of Besatz in wheat (*Triticum aestivum* L.), durum wheat (*Triticum durum* Desf.), rye (*Secale cereale* L.), triticale (*Triticosecale Wittmack* spp) and feed barley (*Hordeum vulgare* L.)

februari 2016
ICS 67.060

Commentaar vóór 2016-03-14

Zal vervangen NEN-EN 15587:2008+A1:2013

Als Europees normontwerp is gepubliceerd: prEN 15587:2016, IDT

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Voorbeeld
Preview

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 15587

January 2016

ICS 67.060

Will supersede EN 15587:2008+A1:2013

English Version

Cereal and cereal products - Determination of Besatz in wheat (*Triticum aestivum* L.), durum wheat (*Triticum durum* Desf.), rye (*Secale cereale* L.), triticale (*Triticosecale Wittmack* spp) and feed barley (*Hordeum vulgare* L.)

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Getreide und Getreideerzeugnisse - Bestimmung von Besatz in Weizen (*Triticum aestivum* L.), Hartweizen (*Triticum durum* Desf.), Roggen (*Secale cereale* L.), Triticale (*Triticosecale Wittmack* spp.) und Futtergerste (*Hordeum vulgare* L.)

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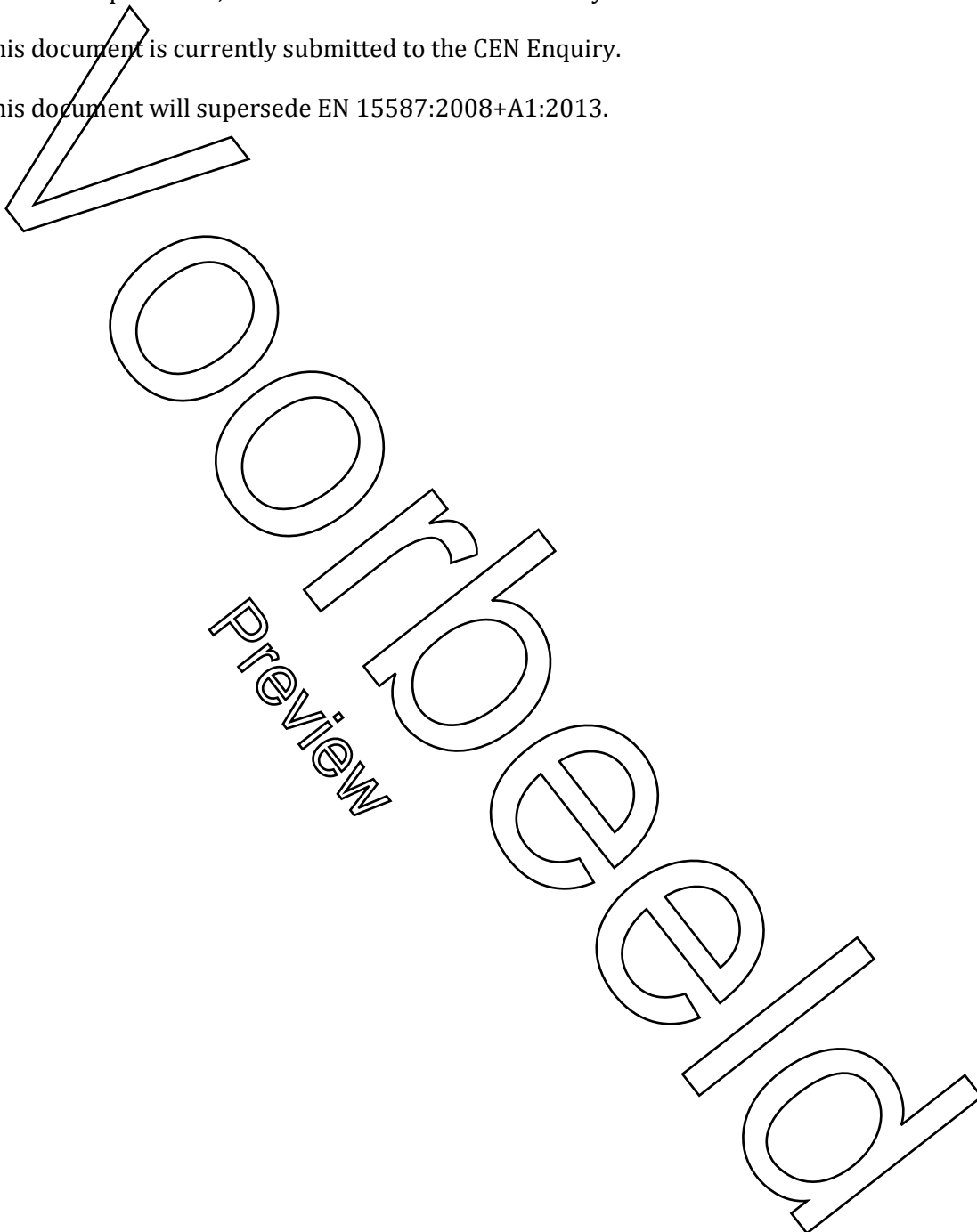
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European foreword

This document (prEN 15587:2016) has been prepared by Technical Committee CEN/TC 338 “Cereals and cereals products”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15587:2008+A1:2013.



1 Scope

This European Standard specifies the term *Besatz* (impurities) and describes methods for the determination of its components. The term *Besatz* is used as a parameter for certain quality aspects in common wheat (*Triticum aestivum* L.), durum wheat (*Triticum durum* Desf.), rye (*Secale cereale* L.), triticale (*Triticosecale Wittmack* spp) and feed barley (*Hordeum vulgare* L.).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5223, *Test sieves for cereals*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

Besatz

all matter of a sample of grain other than the basic cereal of unimpaired quality

Note 1 to entry: It comprises the four fractions: broken grains, grain impurities, sprouted grains and miscellaneous impurities.

Note 2 to entry: Live pests are not considered as *Besatz*. They are specified as a separate criterion.

Note 3 to entry: A schematic summary on *Besatz* is given in Annex C.

Note 4 to entry: Pictures of examples are given in [9].

3.2

broken grains

all grains belonging to the basic cereal and whose endosperm is partially uncovered, including grains damaged by threshing and grains from which the germ has been removed

Note 1 to entry: Grains damaged by pests or unsound are considered respectively as 3.3.3 and 3.5.2.

3.3

grain impurities

fraction consisting of shrivelled grains, other cereals, grains damaged by pests, grains in which the germ is discoloured (only for common and durum wheat), mottled grains (only for durum wheat) and grains overheated during drying

Note 1 to entry: For common wheat, grains in which the germ is discoloured are disregarded up to 8 %.

3.3.1**shrivelled grains**

grains which after elimination of all other matter defined in this European standard pass through 20 mm slotted sieves with long rounded apertures of specific dimensions and grains damaged by frost and unripe grains (green)

Note 1 to entry: The specific dimensions are the following:

— common wheat	2,0 mm
— durum wheat	1,9 mm
— rye	1,8 mm
— triticale	1,9 mm
— feed barley	2,2 mm
— feed barley with moisture content below 12,5 %	2,0 mm

Note 2 to entry: Frost damaged kernels can show the following appearance: black or brown discoloration, bleached or blistered, distinctly wax-like or candied surface. Frequently they have dark stripes showing through the sides of the kernel.

3.3.2**other cereals**

all cereals grains, whatever their state, excepted unsound grains or part of unsound grains not belonging to the considered species

Note 1 to entry: In a durum wheat sample, all common wheat grains and their grain dockage components are classified as other cereals and vice versa.

3.3.3**grains damaged by pests**

grains or part of grains belonging to the basic cereal which show visible damage due to attack by insects, rodents, mites or other pests

Note 1 to entry: Grains attacked by wheat midge (*Sitodiplosis mosellana*) are considered unsound grains (3.5.2) only when more than half the surface of the back of the grain is coloured grey to black as a result of secondary cryptogamic attack. Where discoloration covers less than half the surface of the back of the grain, they are classed as grains damaged by pests.

Note 2 to entry: Grains attacked by bug (*Eurygaster integriceps*) are considered damaged by pest when they present or not a coloured point in the centre of a brighter spot, irregular and often wrinkled, with a consistence under the spot easily crumbled, pulverized or reduced to powder.

prEN 15587:2016 (E)**3.3.4****grains with discoloured germ****mottled grains**

grains either

a) with discoloured germ in which the tegument covering the germ is coloured brown to brownish black and in which the germ is normal and not sprouted;

Note 1 to entry: If the germ is coloured only with one little spot, the grain is considered sound.

Note 2 to entry: This fraction only exists for common wheat and durum wheat.

Note 3 to entry: For common wheat these grains are disregarded up to 8 %.

or

b) mottled which show a brown to brownish black discoloration elsewhere than on the germ itself, particularly in the crease

Note 4 to entry: If the coloration is only in the crease, grains are considered mottled only if the spot covers more than 1/4 of the length of the crease.

Note 5 to entry: This fraction only exists for durum wheat.

3.3.5**grains overheated during drying**

grains showing external signs of scorching but of which the kernels are sound

Note 1 to entry: Grains showing external signs of scorching and of which the kernels are coloured yellowish-grey to brownish-black are considered unsound.

3.4**sprouted grains**

grains in which the radicle or plumule is clearly visible to the naked eye

Note 1 to entry: Account should be taken of the general appearance of the sample when its content of sprouted grains is assessed.

Note 2 to entry: In some type of cereals the germ is protuberant, e.g. in durum wheat, and the germ tegument splits when the batch of cereals is shaken. These grains resemble sprouted grains but must not be included in that group. Sprouted grains are only those where the germ has undergone clearly visible changes which make it easy to distinguish the sprouted grain from the normal grain.

3.5**miscellaneous impurities****Schwarzbesatz**

fraction consisting of extraneous seeds, unsound grains, extraneous matter, husks, ergot, bunted grains and impurities of animal origin

3.5.1**extraneous seeds**

seeds of plants, whether or not cultivated, other than cereals

Note 1 to entry: They comprise noxious and not noxious seeds. Noxious seeds mean seeds which are toxic to humans and animals. This group also includes seeds hampering or complicating the cleaning and milling of cereals and seeds affecting the quality of products processed from cereals.

Note 2 to entry: In some cases it may be necessary to distinguish between noxious seeds and not noxious seeds. An indicative list of noxious seeds is given in Annex A.

3.5.2

unsound grains

grains of the species or another cereal rendered unfit for human consumption and, regarding feed grain, for feed consumption, owing to putrefaction, mildew, grains affected with fungi (such as fusarium), bacterial or other causes

Note 1 to entry: Unsound grains also include grains damaged by spontaneous heat generation or too extreme heating during drying which are fully grown grains in which the tegument is coloured greyish-brown to black while the cross-section of the kernel is coloured-yellowish grey to brownish-black.

Note 2 to entry: Grains attacked by wheat midge are considered unsound grains only when more than half the surface of the back of the grain is coloured grey to black as a result of secondary cryptogamic attack. Where discoloration covers less than half the surface of the back of the grain, they need to be classed with grains damaged by pests.

Note 3 to entry: Grains affected with fusariosis are grains whose pericarp is contaminated with *Fusarium* mycelium; such grains look often slightly shrivelled, wrinkled and have pink or white diffuse patches with an ill-defined outline. Grains affected by fusariosis are the major source of mycotoxins.

3.5.3

extraneous matter

all matter in a sample of cereals retained by a sieve with apertures of 3,55 mm and passing through a sieve with apertures of 1,0 mm, and stones, sand, fragments of straw and similar impurities in the sample which pass through a sieve with apertures of 3,55 mm and are retained by a sieve with apertures of 1,0 mm

Note 1 to entry: Other cereals and particularly large grains of the basic cereal and ergot which are retained by a sieve with apertures of 3,55 mm are not extraneous matter.

3.5.4

husks

glumes and grain husks

3.5.5

ergot

sclerotia of *Claviceps purpurea*

3.5.6

bunted grains

grains filled with a fetid-smelling dust comprising the spores of smuts (*Ustilago* spp.) or brown-black spores of bunt (*Tilletia* spp.)

3.5.7

impurities of animal origin

impurities originating from animals such as feathers, hairs, excrements, dead insects and fragment of insects

4 Principle

The principle of this method is to separate all the groups of *Besatz*, defined under 3.1, from the normal basic grains by sieving and manual selection.

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