

**DRAFT SOUTH AFRICAN STANDARD (DSS):
PUBLIC ENQUIRY STAGE**

Document number TC02110_SANS1369ED1

Reference SANS 1369ED1

Date of circulation 2016-09-21

Closing date 2016-11-21

Number and title: SANS 1369:2016 *ORGANIC AGRICULTURE PRODUCTION AND PROCESSING***Remarks:****PLEASE NOTE:**

- The technical committee, TC 2110 responsible for the preparation of this standard has reached consensus that the attached document should become a South African standard. It is now made available by way of public enquiry to all interested and affected parties for public comment, and to the technical committee members for record purposes. Any comments should be sent by the indicated closing date, either by mail, or by fax, or by e-mail to

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IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT SOUTH AFRICAN STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN LAW.

SOUTH AFRICAN NATIONAL STANDARD

Organic agriculture — Production and processing

Draft SA Standard

WARNING

This document references other documents normatively.

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Edition 1

Table of changes

Change No.	Date	Scope

Acknowledgement

The SABS Standards Division wishes to acknowledge the valuable assistance derived from publications of the International Federation of Organic Agricultural Movements (IFOAM) and the Canadian General Standards Board for Organic Production Systems.

Foreword

This South African standard was approved by National Committee SABS/TC 2110, *Organic agriculture production and processing*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in xxxx 201X.

Reference is made in 4.2.2(j)(4), 4.9.4, footnote f to table H.1, H.2, H.3.1, H.3.2(b), and H.5 to the "relevant national legislation". In South Africa this means the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972).

Reference is made in 4.4.17(f), and the footnote to tables B.1 and C.1 to the "relevant national legislation". In South Africa this means the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947).

Reference is made in footnote a to table H.1 to the "relevant national legislation". In South Africa this means the Regulations governing emulsifiers, stabilizers and thickeners and the permitted quantities that foodstuffs may contain in accordance with the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972).

Reference is made in footnote b to table H.1 to the "relevant national department". In South Africa this means the Department of Agriculture, Forestry and Fisheries (DAFF).

Reference is made in footnote c to table H.1 to the "relevant national legislation". In South Africa this means the Regulations governing acids, bases and salts and the permitted quantities that foodstuffs may contain in accordance with the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972).

Reference is made in footnote e to table H.1 to the "relevant national legislation". In South Africa this means the Regulations relating to baking powder and chemical leavening substances antioxidants of the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972).

Annexes A, B, C, E, G, H and I form an integral part of this document. Annexes D and F are for information only.

Compliance with this document cannot confer immunity from legal obligations.

Introduction

This document has been developed to assist in upholding the basic principles of organic agriculture to ensure the development, growth and improvement of organic agriculture.

The principles of organic agriculture are as follows (see the *IFOAM standard for organic production and processing* and CAN/CGSB-32.310):

- a) the principle of health;
- b) the principle of ecology;
- c) the principle of fairness; and
- d) the principle of care.

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Organic agriculture — Production and processing

1 Scope

1.1 This standard covers the following products which display (or are intended to display) descriptive labelling that refers to organic production and processing methods:

- a) processed and unprocessed products for human consumption that are derived mainly from plants, plant products and live animals; and
- b) products from beekeeping.

1.2 It also covers the wild harvesting of plants, and participatory guarantee schemes.

1.3 It does not cover winemaking, aquaculture, game farming, medicinal products, cosmetics and textiles.

NOTE Where claims are made in the advertising material, on the labelling and in commercial documents that describe the product, or its ingredients, as "organic" or by the derivatives of that term, the product is regarded as one that bears indications that refer to it as one that is produced through organic production methods. The term "organic" suggests to the purchaser that the product or its ingredients were obtained by means of organic production methods.

2 Normative references

The following referenced documents are indispensable for the publication of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. Information on currently valid national and international standards can be obtained from the SABS Standards Division.

Codex general standard for food additives (GSFA).

SANS 17065/ISO/IEC 17065, *Conformity assessment – Requirements for bodies certifying products, processes and services.*

3 Definitions

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

3.1 acceptable

acceptable to the authority administering this standard, or to the parties concluding the purchase contract, as relevant, in such a way that the intended purpose of this standard is achieved

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3.2

accredited

officially recognized in accordance with acceptable standards

3.3

additive

substance that is not normally consumed as a food by itself and that is not normally used as a typical ingredient of the food, whether or not it has nutritive value, and that is an intentional addition of the substance to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in the substance or its by-products by becoming a component of the food or otherwise it may affect the characteristics of the food

NOTE An additive does not include contaminants, or substances that are added to food for maintaining or improving the nutritional qualities of the food, and it also does not include sodium chloride.

3.4

audit

systematic and functionally independent examination that is conducted to determine whether activities and related results comply with planned objectives

3.5

certification

procedure that is employed by certification bodies to provide written or equivalent assurance that a product, process or service complies with acceptable standards

3.6

certification body

body that is accredited in accordance with SANS 17065 or other acceptable standards

3.7

conventional

descriptive of material, production or processing practice that is not certified "organic" or "organic in conversion", or that is not approved by a participatory guarantee system

3.8

factory farming

industrial management systems that are heavily reliant on veterinary and feed input not permitted in organic agriculture, or where the animals are prevented from moving around freely, or kept in obscurity, or deprived from litter, or kept in batteries, or where the fattening of chickens with more than 25 kg/m² is allowed (or any combination of these)

3.9

genetically modified organism

GMO

organism that is produced through techniques in which the genetic material has been altered in a way that does not occur naturally by mating or through natural recombination, or through both means

3.10

hydroponic production

hydroponics

method of growing plants with their roots suspended in a mineral nutrient solution, or in an inert medium, such as perlite, gravel or mineral wool to which a nutrient solution is added, and which is not permitted under this standard

3.11**ingredient**

substance including a food additive that is used in the manufacture or preparation of a food, or that is present in the final product, although possibly in a modified form

3.12**ionizing irradiation**

high energy emissions from radio nucleotides that are capable of altering the structure of food for the purpose of controlling microbial contaminants, pathogens, parasites and pests in food, preserving food or to inhibit physiological processes such as sprouting or ripening

3.13**labelling**

means of applying written, printed or graphic representation, particulars, information, trademark, brand name, pictorial matter or symbol to a label, container, packaging, document, notice board or collar of a product, that accompanies the product or that is displayed near the product, for the purpose of describing or promoting the sale or disposal of the product

3.14**logo**

special symbol or other small design that is used by an accredited certification body

3.15**organic agriculture**

science or practice of farming where organic products are produced in accordance with the requirements of acceptable standards

NOTE Organic fertilizer does not relate to this standard unless it has been approved and labelled as an approved input into organic agriculture.

3.16**organic-in-conversion**

descriptive of a production system that has met the requirements of this standard for at least one year and has been certified as such, and applies to plants and plant products only, but that does not qualify as fully organic

3.17**parallel production**

production where the same unit is growing, breeding, handling or processing the same products in both a certified or a participatory guarantee organic system and a non-certified or non-organic system

NOTE 1 A situation where "organic" and "organic in conversion" production of the same product occurs is also defined as parallel production.

NOTE 2 Parallel production is a special type of split production.

3.18**participatory guarantee system**

participatory guarantee scheme

PGS

system among a group of smallholders who produce products for a local market, as follows:

- a) the system shares a common objective with third-party certification systems that are run by accredited certification bodies by providing a credible guarantee to consumers who seek organic products;

NOTE PGSs are locally focused quality assurance systems that serve particular markets. They are built on a foundation of trust, social networks and knowledge exchange.

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b) the system is especially adapted to local markets and short supply chains;

NOTE PGSs enable the direct participation of producers, consumers and other stakeholders in the development and implementation of verification procedures and the review and decision process that is followed to recognize farmers as producers of organic food.

c) the system allows a much more intensive interaction between the farmer and the guarantee organization, and uses tools other than those that are used by third-party certification bodies to maintain integrity

NOTE 1 PGSs integrate capacity building and allow farmers and reviewers to help solve practical problems that will enable producers to comply with the standards.

NOTE 2 The direct involvement of farmers in the PGS process, and the fact that the process is owned by them and other stakeholders, encourage the farmers to take on more responsibility and results in their active involvement in the design of production and certification processes.

3.19

primary forest

indigenous forest (including bushveld type trees) that does not indicate bush encroachment or is not a consequence of it

3.20

processed

descriptive of cooking, baking, heating, drying, mixing, crushing, pressing, churning, separating, extracting juices or other material, peeling, fermenting, eviscerating, preserving, dehydrating, freezing or manufacturing that materially alters the flavour, keeps the quality, or any other property or the making of any substantial change of form, but that does not include refrigeration at temperatures which are above freezing point or any other treatment that merely delays or accelerates the natural processes of ripening or decomposition

3.21

processing aid

substance or material (excluding apparatus or utensils that are not consumed as food ingredients) that is intentionally used in the processing of raw materials, foods or their ingredients, to fulfil a specific technological purpose during treatment or processing of food and that might result in the non-intentional but unavoidable presence of residues or derivatives in the final product

3.22

producer

person or business enterprise that is involved at any stage of the production, processing, storage, packaging, display and importation of organic or organic in conversion products, or who markets such products

3.23

rotation programme

practice of alternating the species or families of annual and biennial crops grown on a specific field in a planned pattern or sequence to break weed, pest and disease cycles and to improve soil fertility and organic matter content

3.24

split production

production where only part of the farm or processing unit is certified as organic, and where the remainder of the property can be non-organic, organic in conversion or organic, but is not certified

3.25**synthetic**

substance that is formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from naturally occurring plant or animal sources, or that is produced to imitate products that are manufactured from natural sources

NOTE The term does not apply to substances that are created by naturally occurring biological processes.

3.26**wild harvesting**

collecting products that are not cultivated, but that are found growing in the wild

4 Requirements for organically produced products**4.1 General**

4.1.1 The requirements for the production process shall include measures for the provision and improvement of the landscape and biodiversity, and they shall contribute to the equilibrium of agricultural production systems by providing for the nutrient requirements of crops and by improving the organic matter content of the soil.

4.1.2 Landless animal husbandry and plant production operations and production units (such as animal feedlots, container growing, hydroponic production and plant production systems that use soil and gravel as anchoring substrate only) shall not be allowed.

4.1.3 Synthetic chemicals (including pesticides and fertilizers) shall not be permitted other than those permitted by this standard.

4.1.4 All materials or products manufactured from GMOs and by means of nanotechnology (except certain medicinal veterinary products) that are not compatible with the principles of organic production shall therefore not be accepted.

4.1.5 Ionizing irradiation shall not be used in the production and processing of organic products.

4.1.6 A quality and safety management system shall form an integral part of the organic production system.

4.1.7 A product certification audit and certification process (or, in the case of PGS, a PGS visit and process) shall be conducted before a product can be regarded as being organic.

4.1.8 A product shall not be certified as organic unless the production system has been subjected to a conversion period, provided that

- a) the length of the conversion period meets the requirements of this standard,
- b) a product which enters the conversion period is subject to the requirements in this standard,
- c) the start of the conversion period is calculated from the date of application to the certification body, or from the date of last application of unapproved farming input, provided that it can be demonstrated that the relevant requirements in this standard have been met from that date,
- d) a conversion period may be acknowledged after changes to the production system have been made in cases where the relevant requirements of this standard have been met for at least three years. The changes to the production system shall be verified through various means, for example through affidavits from independent persons, and
- e) at least one audit shall be conducted during the conversion period.

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4.1.9 The simultaneous operation of organic, organic-in-conversion and conventional production systems shall be allowed provided that

- a) organic and organic-in-conversion farmlands, animals, and storage facilities are clearly separated from conventional farmlands, animals, storage facilities and other parts of the conventional production system, and are available for audit as such,
- b) conventionally propagated annual plants are from different varieties that are clearly identifiable and grown in separate areas and kept separate throughout the production system, including the storage phase,
- c) perennial plants that are propagated by means of conventional methods are of the same varieties provided that
 - 1) the production in question forms part of a plan to convert the production system into an organic one within a maximum period of five years,
 - 2) appropriate measures are taken to ensure the permanent separation of products obtained from each production unit,
 - 3) the producer keeps records of the exact quantities that are harvested, and of any other distinguishing features such as quality, colour and mass,
 - 4) the producer provides the certification body with the harvest information as required, after which an audit may be scheduled,
- d) the same means of production such as tractors and equipment is not used on both organic and conventional farmlands unless they have been thoroughly cleaned before moving them from the conventional farmlands to the organic or organic-in-conversion farmlands,
- e) farmland and animals that have been converted are not switched back and forth between organic, organic-in-conversion and conventional production,
- f) conventionally-bred animals that are from different species are reared and kept separately and allowed to graze separately, and
- g) conventionally-bred animals of different species use the same pasture or grazing, provided that
 - 1) the certification body is informed first,
 - 2) conventionally-bred animals are bred by means of extensive livestock farming methods, and
 - 3) conventionally-bred animals are not present on the pasture or grazing at the same time as animals that are bred by means of organic methods.

4.1.10 All input (products or substances, or both) into organic agriculture shall comply with the requirements of this standard. The producer shall prefer the use of inputs that are approved for use in organic production and labelled as such by the certification body. In the absence of better alternatives, conventional inputs may be allowed provided that they are allowed by this standard. The producer shall constantly strives to make use of more acceptable inputs by regularly evaluating all inputs and practices of the operation in accordance with the criteria given in annex A.

4.1.11 The producer shall update documentation and records in accordance with the requirements of this standard and that of the certification body in order to demonstrate compliance.

4.1.12 Systems that produce organic products shall not be situated in specific areas, (such as heavy industrial and mining areas and conventional farming areas that are heavily reliant on conventional input where pollution occurs), and where there is a risk of contamination of the operation with substances from the environment or other sources that are not compatible with the principles of organic production as stipulated in the requirements of this standard. The risks from the use of input and equipment or any other sources that are not compatible with the principles of organic production as stipulated in this standard, (such as storm water from roads, the use and disposal of equipment oil, vehicle oil leaks, household chemicals in wastewater used for food gardens, and the handling, storage and disposal of allowed chemicals), shall be determined and eliminated or managed.

4.2 Products of plant origin

4.2.1 Organic products of plant origin shall be propagated as follows:

- a) Organically propagated seed and plant material may be used provided that chemically untreated conventional material is used when organically propagated seed and plant materials are not available.
- b) Chemically untreated conventional material may only be used if the producer confirms the use thereof with the certification body.
- c) The propagation of a new organic variety shall be done in accordance with the requirements of this standard and all steps of propagation (except *in vitro* cultivation) shall be done in accordance with the requirements of an organic management system.
- d) An existing variety shall be regarded as organic after at least three years of maintenance in accordance with an organic management system.
- e) Conventional seed and plant propagation material shall be regarded as being organic if it has been done in accordance with an organic management system for the following periods and conditions:
 - 1) one generation for annuals;
 - 2) two growing periods (at least 18 months) for perennials; and
 - 3) only saplings and seedlings may be grown in containers.

4.2.2 Organically propagated products of plant origin shall comply with the following production practices:

- a) Sufficient diversity shall be obtained in a manner that takes into account the beneficial and detrimental impact of insects, weeds, diseases and other pests, while maintaining or increasing soil organic matter, fertility, microbial activity and general soil health.
- b) Local conditions and the specific nature of crops shall be taken into consideration in determining the amount of biodegradable material from an outside source that is allowed as part of an operation to restrict the risk of pollution.
- c) The substances allowed for use in fertilization and soil conditioning shall be as indicated in annex B, provided that
 - 1) the organic and mineral fertilizers mentioned in annex B are applied only in cases where adequate nutrition of the crop or soil conditioning is not possible by the relevant methods,

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- 2) the use of the substances in annex B for the production of plant products, pastures and meadows is managed to limit the potential for microbial, chemical, physical and parasite contamination of the products, pastures and meadows,
 - 3) certain restrictions are placed on the use of the substances in annex B where use could result in, or contribute to, unacceptable effects on, or contamination of the environment, soil organisms and the quality and safety of the final product,
 - 4) the producer regularly evaluates the substances used during the operation in accordance with the criteria in annex A,
 - 5) the criteria in annex A are used to amend annex B or to determine the need for the use of the substances in annex B.
- d) Manure that contains human excrement (faeces and urine) shall not be used.
 - e) Mineral fertilizers shall be applied in their natural composition (without chemical treatment to render them more soluble), with the exception of those listed in annex B.
 - f) Plant based preparations such as "biodynamic preparations" or microbial preparations including those from stone meal, farmyard manure or plants may be used for compost activation or to improve the overall condition and nutrients of the soil.
 - g) Chilean nitrate and all synthetic nitrogenous fertilizers, including urea, shall not be used.
 - h) Pests, diseases and weeds shall be controlled by a combination of the following measures:
 - 1) a choice of appropriate species and varieties;
 - 2) appropriate rotation programmes;
 - 3) mechanical cultivation procedures;
 - 4) protection of natural enemies of pests by providing conditions that are favourable to them; and
 - 5) flame and steam weeding.
 - i) Thermic sterilization of soils to combat pests and diseases shall only be used under circumstances where proper rotation or renewal of soil cannot take place.
 - j) Only substances indicated in annex C shall be used to control plant pest and disease, to manage weeds and to regulate growth, and only with the following provisions:
 - 1) these substances are applied only in cases of immediate threat to the crop when control measures are not adequate;
 - 2) certain restrictions are placed on the use of these substances where use could result in, or contribute to, unacceptable effects on, or contamination of the environment, soil organisms and the quality and safety of the final product;
 - 3) the producer regularly evaluates the substances used in the operation in accordance with the criteria in annex A;
 - 4) when any substance or mixture of substances from those listed in annex C is sold, and the labelling refers to any remedial measure against a pest or pests, such as an insecticide, herbicide or fungicide, the product or products shall be registered in accordance with the relevant national legislation (see foreword); and
 - 5) any new products to be added to annex C shall be evaluated in accordance with the criteria in annex A.

- k) Products for pest, disease and weed management that are prepared on the farm from local plants, animals and microorganisms may be used for pest, disease and weed management provided that
- 1) the producer can provide proof that the safety of the products was investigated,
 - 2) the producer regularly evaluates the products used during the operation in accordance with the criteria in annex A to confirm the safety and organic status of the products to identify better alternatives, and
 - 3) the producer immediately informs the certification body when products are changed after which an audit may be scheduled.
- l) All equipment used during conventional operations shall be properly cleaned and free from residues before being used on organically managed areas.
- m) Synthetic pesticides, herbicides, fungicides and insecticides shall not be used, with the exception of those listed in annex C.
- n) Clearing of vegetation by burning organic matter shall be restricted to a minimum.
- o) Primary forests shall not be cleared.
- p) Relevant measures shall be taken to prevent soil erosion.
- q) Water resources shall not be exploited and depleted excessively.
- r) Appropriate stocking densities, which do not lead to veld degradation, soil erosion and pollution of ground and surface water, shall be followed.
- s) Relevant measures shall be taken to prevent salination of soil and water.
- t) Compost shall be made in an aerobic process in which a temperature of between 55 °C and 65 °C is maintained to achieve the following:
- 1) a good nutrient content, microbial activity and good humus content;
 - 2) inactivation of pathogens of plant and animal origin (sanitation); and
 - 3) inactivation of residual DNA of GMO plant matter.

4.2.3 Organic products of plant origin shall be subjected to the following conversion practices:

- a) Products from annual plants may be certified organic when the requirements have been met for a minimum of 24 months before the start of the production cycle.
- b) Perennial plants (excluding pastures and meadows) may be certified organic from the first harvest after the requirements have been met for at least 36 months.
- c) Pastures, meadows, fields and their products used for feed or grazing may be certified organic after the requirements have been met for 24 months.
- d) The conversion periods may be extended depending on past conditions of the farmland and the environment.
- e) The conversion periods may be retroactively acknowledged if guarantees or proof is obtained that the conversion practices have been met.

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4.2.4 Organic products of plant origin shall comply with the following contamination control criteria:

- a) Only products that are based on polyethylene and polypropylene or other polycarbonates are allowed for protective structure coverings, plastic mulches, fleeces, insect nettings and silage wrapping, which shall be removed after use, shall not be burned during the operation and shall be properly disposed of.
- b) In the case of reasonable suspicion of contamination the relevant products and possible sources of pollution shall be analysed to determine the level of contamination.

4.3 Products of animal origin

4.3.1 Animals that are bred in an organic production system shall be bred as follows:

- a) from livestock that is raised in an organic production system (when available), and in the choice of breeds or strains account shall be taken of the capacity of the animals to adapt to local conditions, their vitality, and resistance to disease. Specific diseases or health problems associated with some breeds or strains used in intensive livestock and factory farming production shall be avoided;
- b) from breeds that can both copulate and give birth naturally;
- c) in an organic production system, except in the case of poultry production, where chicks may be brought in without being bred in the organic production system;
- d) through artificial (instrumental) insemination with sperm from organic livestock;
- e) when a herd or flock is constituted for the first time, or in the case of high mortality of animals caused by catastrophic circumstances and the unavailability of organic livestock, conventional animals may be acquired in line with the following age limits:
 - 1) chickens for the production of eggs and meat less than 3 d old;
 - 2) two week old birds in the case of any other poultry;
 - 3) piglets, for breeding purposes, reared in accordance with the requirements of this standard as soon as they are weaned and that weigh less than 35 kg;
 - 4) calves, for breeding purposes, reared in accordance with this standard as soon as they are weaned and that are less than six months old;
 - 5) lambs and kids for breeding purposes reared in accordance with the requirements of this standard as soon as they are weaned and that are less than 60 d old; and
 - 6) horses for breeding purposes reared in accordance with the requirements of this standard as soon as they are weaned and that are less than six months old;
- f) from conventionally bred stock when animals reared in accordance with organic systems are not available, with a yearly maximum of 10 % of adult equine or bovine livestock, 20 % of the adult porcine, ovine and caprine livestock, and for breeding units with less than ten equine or bovine animals, or less than five porcine, ovine or caprine animals, a maximum of one animal per year may be allowed;
- g) from the stock mentioned in (f) where the percentages may be increased up to 40 % in the following special cases:
 - 1) when a major extension to the stock farm is undertaken;

- 2) when a breed is changed;
 - 3) when a new livestock specialization is developed; or
 - 4) when breeds are in danger of being lost to farming (animals of these breeds need not be nulliparous);
- h) from conventional production systems (see (e), (f) and (g)) that are subject to the conversion periods prescribed for the animals;
- i) from conventional production systems that are from extensive livestock farming practices.

4.3.2 Operations for animals from organic production systems shall comply with the following production practices:

- a) management of the animal environment (see annex D) shall take into account the size of the group, the animals' gender and the behaviour or needs of the animals (or both), and shall
- 1) provide access to grazing or pastures (or both), appropriate to the type of animal and the season,
 - 2) allow sufficient free movement in free-range, open-air exercise areas or open-air runs that are mainly covered by vegetation, and that may be partially covered,
 - 3) provide access to sufficient fresh air and natural daylight in line with the needs of the animals,
 - 4) provide protection against excessive sunlight, temperatures, rain and wind,
 - 5) ensure that stock densities in buildings provide adequate space in line with the species, breed, and age,
 - 6) use natural materials for animals that require bedding and provide ample relatively clean, dry bedding in the rest area,
 - 7) provide ample and easy access to fresh potable water and fresh palatable feed in line with the needs of the animals,
 - 8) provide adequate facilities for the animals to be able to express behaviour in accordance with the biological and ethological needs of the species,
 - 9) not use construction materials or production equipment in a way that may significantly harm human and animal health,
 - 10) not keep animals individually and shall consider the stage of development and behavioural needs of the species concerned when deciding on the size of the group,
 - 11) not keep livestock tethered,
 - 12) construct housing to ensure that air circulation, dust levels, temperature, relative humidity and gas concentration are kept within limits that are not harmful to the animals (housing is not mandatory in areas with appropriate climatic conditions),

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- 13) ensure that perches, indoor housing and outdoor exercise areas are of a number and size commensurate with the size of the group of animals or birds and the minimum surface areas for perches, indoor housing and outdoor exercise areas as specified in annex E and those in poultry houses for laying hens have a sufficiently large part of the floor area that is available to the hens for the collection of bird droppings,
 - 14) ensure that at least half the floor area of livestock housing is solid, not of slatted or of grid construction and that the floors are not slippery (the solid floor area may be reduced to one third for poultry and shall be covered with litter material),
 - 15) ensure that calves are not housed in individual boxes after the age of one week,
 - 16) ensure that sows are kept in groups except in the last stages of pregnancy and during the suckling period, and that piglets are not kept in piglet pens,
 - 17) provide exercise areas for pigs that permit dunging and rooting by the animals, the latter for which different substrates shall be used,
 - 18) ensure that housing, equipment and utensils are properly cleaned and disinfected to prevent cross infection and removal of the accumulation of disease carrying organisms and faeces, urine and uneaten or spilt feed as often as required to minimize smell and to avoid attracting insects or rodents,
 - 19) ensure that housing allows access to a stream, pond or lake in the case of water fowl,
 - 20) ensure that poultry houses or buildings have exit or entry pop-holes, or both, of adequate size for the birds with a combined length of at least 4 m per 100 m² of the poultry building,
 - 21) ensure that poultry buildings are emptied of livestock between each batch of poultry reared, cleaned and disinfected and left empty for at least two months for health reasons and for the vegetation to grow back;
- a) when the natural day length is prolonged by artificial lighting, the maximum hours that shall be maintained with respect to the various species, geographical considerations and the general health of animals, shall be 16 hours' light per day for poultry followed by a continuous nocturnal rest period without artificial lighting of at least eight hours (see annex D);
 - b) physical castration by competent personnel may be performed, except in the case of poultry (capons);
 - c) mutilation shall not be performed, with possible exceptions in the case of castration (excluding poultry), tail docking of lambs, dehorning and ringing, provided that
 - 1) suffering is minimized,
 - 2) anaesthetic is used,
 - 3) operations are carried out at the most appropriate age by competent personnel,
 - 4) the treatments are intended to improve the health, welfare and hygiene of the animals, and
 - 5) exceptions are subject to need;

- d) the allowed feed and substances used in feeding stuffs as well as the fodder preservatives and processing aids for silage, provided that producers regularly evaluate the feed and substances used in the organic production system against the criteria in annex A to confirm the organic status of those substances or to identify possible alternatives that are of a better organic status, and that they immediately inform the certification body when the feed or substances are changed, after which an audit may be scheduled;
- e) animals should be fed 100 % organic feed, provided that
- 1) in the case of herbivores, at least 50 % of the feed comes from the operation itself or is produced in co-operation with other organic processes in the region,

NOTE Up to 30 % on dry basis, of the feed formula or rations on average may comprise in-conversion feed or up to 60 % if the feed comes from the process itself.
 - 2) in situations where it is impossible to obtain adequate organic feed, and feed from conventional origin is used, this shall only be to a maximum of 5 % dry matter for herbivores and 10 % dry matter for other species (calculated annually),
 - 3) at least 60 % of the dry matter in the daily rations of herbivores shall consist of roughage, fresh or dried fodder, or silage,
 - 4) roughage, fresh or dried fodder, or silage shall be added to the daily ration for pigs and poultry, and
 - 5) the feed formula used in the fattening stage of poultry shall contain at least 65 % cereals;
- f) the following products shall not be included in or be added to the feed, or shall not in any other way be given to the animals (see annex D):
- 1) synthetic appetizers;
 - 2) preservatives, except when used as processing aids;
 - 3) artificial colouring agents;
 - 4) urea;
 - 5) farm animal by-products;
 - 6) droppings, dung or other manure;
 - 7) feed subjected to solvent extraction or the addition of other chemical agents;
 - 8) pure amino acids;
 - 9) substances such as antibiotics, coccidiostatics, medical substances, growth regulators for production, stimulation or suppression of natural growth; and
 - 10) hormones for heat induction and heat synchronization unless used for an individual animal against reproductive disorders, justified by veterinary indications;
- g) feeding shall be such as to ensure quality rather than to maximize production; while meeting the nutritional requirement of the animals at various stages of their development, fattening practices may be used in so far as that they are reversible at any stage of the rearing process (see annex D);
- h) force feeding shall not be practised;

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- i) young stock from mammals shall be raised on organic milk, preferably from their own species;
- j) minimum weaning times shall be
 - 1) three months for bovines and equidae,
 - 2) 45 d for sheep and goats,
 - 3) 40 d for pigs;
- k) disease prevention shall be based on encouraging the resistance to disease and the prevention of infections and health problems by
 - 1) the selection of appropriate breeds or strains of animals;
 - 2) the application of stress free animal husbandry practices appropriate to the requirements of each species;
 - 3) the use of high quality feed, together with regular exercise and access to pasturage;
 - 4) assuring an appropriate density of livestock;
 - 5) regular observation of the animal's condition and early intervention if needed;
- l) the well-being of the animals is the primary consideration in the choice of illness treatment, and a sick or injured animal shall be treated immediately, in isolation or appropriate housing shall be provided where necessary, irrespective of the consequence to the certification status of the animal, and if an animal is so severely diseased or injured that to prolong its life would cause unnecessary suffering, it shall be immediately euthanized; and
- m) the use of veterinary medicinal products shall comply with the following (see annex D):
 - 1) phytotherapeutic, homeopathic and trace elements, which are effective for the species of animal and the condition for which the treatment is intended, shall be used in preference to chemically-synthesized allopathic veterinary medicinal products or antibiotics;

NOTE If these products are not, or are unlikely to be, effective in combating illness or injury and if treatment is essential to avoid suffering or distress to the animal, chemically-synthesized allopathic veterinary medicinal products or antibiotics may be used under the supervision of a veterinarian.
 - 2) chemically-synthesized allopathic veterinary medicinal products or antibiotics shall not be used for preventive treatment;
 - 3) substances that are administered to promote growth or production, and hormones and similar substances that are administered to control growth or reproduction shall not be used except in the case of the reproductive disorders of an individual animal if justified by veterinary indications;
 - 4) when veterinary medicinal products are used it shall be recorded together with the details of the diagnosis, method of administration, duration of treatment and legal withdrawal period;
 - 5) the livestock that were treated shall be clearly identified (individually in the case of large animals and individually or by batch in the case of poultry and small animals);

- 6) vaccinations, treatments for parasites and legally required veterinary treatments to animals, buildings, equipment and facilities shall be allowed, including cases where a disease has been recognized as being present in a specific area. Treatments may include the application of genetically modified organisms and products derived from such organisms;
- 7) when allopathic veterinary medicinal products are used the withdrawal period shall be at least double the legal period or at least 48 h when no withdrawal period is specified; and
- 8) where an animal or a group of animals receive more than two courses of treatment with chemically-synthesized allopathic veterinary medicinal products or antibiotics within one year, the animals shall again undergo the prescribed conversion periods. This requirement does not apply in the case of the treatments given in 4.3.2(m)(6).

4.3.3 Animals that are bred in organic production systems and the farmland and feed that is associated with their breeding are subject to the following conversion practices:

- a) The conversion periods for products of plant origin shall apply to pastures, meadows, farmland and products that are used for feed and grazing.
- b) The conversion period shall be reduced to one year for pastures, open-air runs and exercise areas that are used by non-herbivore species, provided that the conversion period may be reduced to six months if guarantees or proof can be obtained that the conversion practices have been adhered to.
- c) Animal products may be certified organic after the animals in the system or the relevant part thereof have been in an organic system for at least the following periods:
 - 1) 12 months in the case of equidae and bovines that are kept for meat production;
 - 2) six months in the case of small ruminants and pigs;
 - 3) six months in the case of animals that are kept for milk production;
 - 4) 10 weeks in the case of poultry that are kept for meat production and that were acquired before they were 3 d old; and
 - 5) six weeks in the case of poultry that are kept for egg production and that were acquired before they were 3 d old.

4.3.4 Animals that are kept in organic systems shall be transported and slaughtered as follows:

- a) The handling during transport and slaughter shall be gentle without the use of electric sticks and similar instruments.
- b) Slaughter and transportation standards shall take the following into consideration:
 - 1) the stress caused to the animals;
 - 2) the fitness of the animals;
 - 3) the loading and unloading;
 - 4) the results of mixing different groups of animals or animals of different gender;
 - 5) the quality and suitability of the mode of transport and the handling equipment;
 - 6) the temperature and relative humidity;

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- 7) hunger and thirst; and
 - 8) the specific needs of each species.
- c) No chemically or synthesized tranquilizers, sedatives or stimulants shall be given before or during transport.
- d) Each animal or group of animals shall be identifiable during transport and slaughter.
- e) Slaughterhouse journey times shall not exceed 8 h.
- f) For poultry, the minimum age at slaughter shall be the following:
- 1) 81 d for chickens;
 - 2) 49 d for Peking ducks;
 - 3) 70 d for female Muscovy ducks;
 - 4) 84 d for male Muscovy ducks;
 - 5) 92 d for mallards;
 - 6) 94 d for guinea fowl; and
 - 7) 40 d for turkeys and roasting geese.
- g) Where producers do not apply these minimum slaughter ages, they shall use slow-growing breeds.

4.3.5 Livestock manure shall be handled as follows:

- a) The stocking density shall be such that the total amount of manure applied per hectare does not exceed 170 kg of nitrogen per hectare per year of agricultural area used.

NOTE Guidelines for the density of livestock that is equivalent to 170 kg of nitrogen per hectare per year of agricultural area used are given in annex E.

- b) Storage facilities for livestock manure shall be of such capacity as to prevent the pollution of water by direct discharge or by run-off or infiltration of the soil.

4.3.6 Organic livestock and livestock products shall be identified at all stages of their production, preparation, transport and marketing.

4.4 Beekeeping

4.4.1 Organic beekeeping shall comply with the specific production practices as given in 4.4.2 to 4.4.18.

4.4.2 Hives shall be situated in organically managed fields and farmland or uncultivated areas, bush or veld, and shall be collected.

4.4.3 When the survival of the hives is endangered owing to extreme climatic conditions, feeding shall take place under the following conditions, and the information shall be recorded with regard to the type of feed, dates, quantities and the hives that were used:

- a) after the last harvest and before the next season;
- b) only if the feed consists of certified organic honey, sugar syrup, sugar molasses; and
- c) to the extent that the feed is not stored by the bees.

4.4.4 The foundation comb shall be made of organic beeswax.

4.4.5 The beehive shall primarily consist of natural materials; materials with potentially toxic effects shall not be used.

4.4.6 Mutilation such as wing clipping shall not be practised.

4.4.7 Artificial (instrumental) insemination of bees shall not be practised.

4.4.8 Destruction of bees as harvesting method shall not be practised.

4.4.9 When working with bees a repellent that consists of prohibited substances, such as those found in synthetic repellents, shall not be used.

4.4.10 Replacement of the queen bees involving the killing of the old queen may be performed.

4.4.11 Beekeeping products may be sold as organic products only when the provisions of this standard have been met for at least one year.

4.4.12 Conventional and organic production may be practised simultaneously, provided that each type of hive is clearly identified and conventional and organic hives are sited at least 6 km apart.

4.4.13 The siting of the hives during production shall

- a) ensure sufficient natural nectar, honeydew, pollen sources and access to water,
- b) be such that, nectar and pollen sources consist of organically managed fields and farmland or uncultivated areas, bush, or fields that shall be within a radius of at least 3 km from the hive, and
- c) maintain a distance of 3 km from non-agricultural activities, such as urban areas, motorways, industrial areas and waste dumps that can possibly lead to contamination of the sources, products or bees.

4.4.14 New hives shall be established by means of colonies or the acquisition of swarms from operations that comply with the provision of this standard, provided that 10 % per year of queen bees and swarms that do not comply with the requirements of this standard can be incorporated into organic production systems without the implementation of a conversion period.

4.4.15 Hives shall be left with reserves of honey and pollen sufficiently abundant to allow the bees to survive lean times, provided that feeding takes place as necessitated by the conditions and in accordance with the requirements in 4.4.3.

4.4.16 Disease prevention shall be based on the application of stress-free practices that encourage resistance to disease and the prevention of infections, such as

- a) the regular renewal of queen bees,
- b) the systematic auditing of hives to detect any health anomalies,
- c) the control of drone broods in the hives,

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- d) the disinfecting of materials and equipment at regular intervals,
- e) the destruction of contaminated material or sources,
- f) the regular renewal of beeswax, and
- g) ensuring a sufficient reserve of pollen and honey in hives.

4.4.17 The use of veterinary medicinal products shall comply with the following requirements:

- a) Phytotherapeutic and homeopathic products shall be used in preference to chemically-synthesized allopathic veterinary medicinal products, provided that their therapeutic effect is effective for the condition for which the treatment is intended.

NOTE If these products are not (or are unlikely to be) effective in combating illness or injury, chemically-synthesized allopathic veterinary medicinal products or antibiotics may be used under the supervision of a veterinarian.

- b) Chemically-synthesized allopathic veterinary medicinal products or antibiotics shall not be used for preventive treatment.
- c) The following substances may be used for pest and disease control and for hive disinfection provided that the producer regularly evaluates the substances used in the organic system in accordance with the criteria in annex A:
 - 1) caustic soda;
 - 2) lactic, oxalic, acetic acid;
 - 3) formic acid;
 - 4) sulfur;
 - 5) menthol, thymol, eucalyptol or camphor;
 - 6) *Bacillus thuringiensis*; and
 - 7) physical treatments such as steam or direct flame.
- d) When veterinary medicinal products are used it shall be recorded together with the details of the diagnosis, the posology, the method of administration, the duration of treatment and the legal withdrawal period.
- e) When chemically-synthesized allopathic products are used for treatment
 - 1) the hives shall be placed in isolation,
 - 2) the wax shall be replaced, and
 - 3) the conversion period of one year shall apply.
- f) Any veterinary treatment or treatments to hives and combs which are compulsory under the relevant national legislation (see foreword) shall be authorized.

4.4.18 Hives shall be identified or marked and records shall be kept of the following:

- a) where the hives are kept;
- b) maps locating the beehives;
- c) the movement or removal of supers;
- d) the transport of bees;
- e) feeding;
- f) treatments and general check-ups; and
- g) extraction.

4.5 Wild harvesting of plants

Organic wild collection may be done of plants or parts thereof that grow naturally in areas that are not maintained under cultivation or other agricultural management systems, if they are harvested under the following conditions:

- a) if they are derived from a stable and sustainable growing environment, provided that harvesting or gathering does not exceed the sustainable yield of the ecosystem, or does not affect the stability of the natural habitat, or the maintenance of the species in the collecting area;
- b) if the collecting area is clearly defined and mapped, and if the plants or parts thereof can legally be harvested by the producer and it can be proved not to overlap with collection by other persons, and if it is not exposed to prohibited substances;
- c) if the collecting area is an appropriate distance from conventional farming, pollution and contamination;
- d) if collectors are supervised by the producer and trained to respect the border of the collection area and to identify which species to collect (with due consideration to the long-term sustainability of the collected species and all other natural species in the area). (This aspect shall include methods of collection, intensity of exploitation, seasonality, and correct vegetative state for collection.);
- e) if the area has not received treatments with substances that are not in accordance with this standard for a period of at least three years before collection;
- f) if the producer has a manual which identifies the risks to the environment and the measures that were taken to reduce those risks; and
- g) if all post-harvest procedures, including transportation and storage, meet the general requirements in 4.1 for the production of organic materials.

4.6 Pest and disease control

4.6.1 The following measures shall be taken in order of priority:

- a) preventive methods such as the disruption, elimination of habitat and access to facilities;
- b) mechanical, physical or biological methods;
- c) methods for the use of substances as specified in annex C; and

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d) methods for the use of substances in traps.

4.6.2 No substances other than those listed in annex C shall come into contact with organic products.

4.7 Cleaning, disinfection and sanitizing

4.7.1 Cleaning, disinfecting and sanitizing agents for livestock, buildings and installations shall be used as specified in annex G, provided that the producers regularly evaluate the agents used in the organic process in accordance with the requirements in annex A to confirm their organic status or to identify possible alternatives that are of better organic status or less harmful, and they shall immediately inform the certification body when the agents are changed, after which an audit may be scheduled.

4.7.2 The necessary precautions shall be taken to protect organic food against contamination by cleaning, disinfecting and sanitizing methods that shall not be used in certified organic facilities.

4.7.3 Organic food may come into contact with surfaces where an approved cleaner, sanitizer or disinfectant has been used only after any one or a combination of the following has been used:

- a) a potable water rinse;
- b) a flush with organic products that may not be sold as organic;
- c) adequate time for the substance to volatilize.

4.7.4 Specific cleaning procedures, and cleaning, disinfecting and sanitizing agents that are prescribed by supermarkets or chain stores, may be used provided that any one or a combination of the intervening events described in 4.7.3 is used thereafter, and that the producer make use of the least harmful agents available.

NOTE SANS 1828 and SANS 1853 give details on the requirements and safety of cleaning chemicals, disinfectants and detergent-disinfectants used in the food industry.

4.7.5 An organic cleaning procedure, suitable for the type of operation, shall be established and documented.

4.7.6 Monitoring shall take place to determine the adequacy of the cleaning procedure and whether the equipment or finished products (or both), are free of detergent and sanitizer residues.

4.7.7 Residues of boiler water additives shall be prevented from coming into contact with organic food.

4.7.8 Waste water from the process that contains cleaning, disinfecting and sanitizing agent residues that might pose a contamination threat to the environment shall not be used for irrigation, but shall be captured in a system where it is biologically treated.

4.8 Processing, handling, packaging, storage, distribution and retailing

4.8.1 All equipment, vehicles and reusable containers that are used for the conventional product shall be properly cleaned and shall be free from residues before being used for organically produced products. Dedicated equipment shall, however, be preferred.

4.8.2 Material used for packaging shall not contaminate the products, and the effect that it may have on the environment shall be taken into consideration. The usage of second-hand containers, such as carton boxes that are employed for packing or transport and the previous application thereof shall be noted and special care shall be taken to prevent contamination of the product.

4.8.3 Organically produced products shall be protected from mixing with conventional products during processing, handling, packaging, storage, distribution and retailing.

4.8.4 All products shall be adequately identified through the entire process.

4.8.5 Methods shall be set to prevent and control pollutants and contaminants.

4.8.6 Decontamination and disinfection or cleaning programmes (or both) shall be set for facilities where organic products are kept, handled, processed, stored and sold. Such programmes shall be used while taking the environment into consideration. Quality control systems shall be documented.

4.8.7 Compliance with 4.8.1 to 4.8.6 shall be demonstrated through documentation such as the defining of separation measures, records, cleaning records, measures to avoid contamination with lubricants and cleaning agents, packaging material specifications, standard operating procedures, building plans and sketches.

4.8.8 The following treatments or conditions of storage shall be adhered to:

- a) modified and controlled atmosphere;
- b) temperature control;
- c) drying;
- d) humidity regulation.

4.8.9 Ingredients of non-agricultural origin and the processing aids that are specified in annexes H and I respectively, may be used in the processing of products that are organically produced provided that they are

- a) indispensable for ensuring the safety of the food,
- b) essential in the preparation or preservation of such food, or
- c) legally required.

4.8.10 The producer shall regularly evaluate the substances that are used in the organic production process (see annexes H and I) in accordance with the criteria given in annex A.

4.8.11 Synthetic dyes shall not be used for the cosmetic alteration of an organic product.

4.8.12 The following processes may be used:

- a) mechanical and physical;
- b) biological;
- c) smoking;
- d) extraction;
- e) precipitation;
- f) filtration;
- g) distillation; and
- h) microwaving.

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4.8.13 Extraction shall only take place physically or with water or ethanol, plant and animal oils, vinegar, carbon dioxide, nitrogen or with carboxylic acids of food grade quality.

4.8.14 Filtration substances shall not contain asbestos or other substances that can negatively affect the product.

4.8.15 All packaging of organic food and beverages shall be of food grade material.

4.8.16. For the purpose of accepting imported ingredients or products as organic, the following criteria shall be applied by the operator, subject to prior approval by the certification body or PGS:

- a) The product is certified to an organic standard that has been officially approved as equivalent to an international organic norm by a neutral and legitimate international organization.
- b) The product is certified to the above standard by a certification body that has received national or international organic accreditation for the scope of that standard and of the product category to which the product belongs.

4.9 Labelling and marking

4.9.1 The statement "produce of organic agriculture in process of conversion" or "organic-in-conversion" or similar wording that refers to "organic" and "conversion" in letters of the same size, type and colour, and with the word "organic" displayed less prominently than the rest of the statement may be indicated on the labelling of organically produced products of plant origin in conversion, after a conversion period of 12 months. The statement may be displayed provided that the products contain only one crop ingredient of agricultural origin: These words shall not be displayed on the labelling of animal products.

4.9.2 Organically produced products from plant and animal origin may be labelled as "product of organic agriculture", "organic", "organically produced", "certified organic", or similar wording that refers to "organic" may be used.

4.9.3 A registered logo, indicating that the products are covered by a product certification scheme of a certification body, shall appear on the labelling of organically produced products provided that, subject to the provisions of 4.9.2, no labelling of a product may refer to organic production methods without indicating a logo of an accredited certification body.

NOTE This requirement does not apply in the case of a participatory guarantee system (PGS) (see 4.9.9).

4.9.4 The final packaging of organic products that fall within the scope of this standard shall, subject to the relevant national legislation (see foreword), also display the name, address or certification number of the certified producer who is responsible for production or preparation.

4.9.5 Products that are not in their final packaging and that fall within the scope of this standard may be transported to other premises in appropriate packaging or in containers that are adequately labelled and identified to include the following:

- a) the name and address of the certified producer that is responsible for the production or preparation of the products;
- b) the name of the product;
- c) the certification that is carried by the product; and
- d) wording that specifies that the product is covered by regular audits of a certification body.

4.9.6 Products that contain partly organically produced ingredients shall be labelled in the following way (by dry matter mass):

- a) Where a minimum of 95 % of the ingredients are of organic agricultural origin, products shall be labelled as organic or organic-in-conversion as indicated in 4.9.1 and 4.9.2. They shall display the distinctive mark of a certification body, provided that the balance of the ingredients of the products consists of
- 1) ingredients of non-agricultural origin (see annex H), and
 - 2) ingredients that have not been produced organically, and provided that they are regularly evaluated by the producers in accordance with the requirements in annex A to confirm their organic status or to identify possible alternatives that are more organic, who immediately inform the certification body when ingredients are changed, after which an audit may be scheduled.
- b) If 95 % to 70 % of the ingredients are of organic origin, the word "organic" shall be used on the principal display panel when statements such as "made with organic (in-conversion) ingredients" and "with organic (in-conversion) ingredients" appear with the distinctive mark of a certification body, provided that
- 1) the statement is made in letters of the same size, type and colour, and the word "organic" is not more prominent than the rest of the statement,
 - 2) a clear statement is made regarding the proportion of the organic ingredients,
 - 3) the balance of the product is composed of ingredients of non-agricultural origin as specified in annex H and are ingredients which have not been produced organically, and
 - 4) the producers regularly evaluate the ingredients that are used in the production process in accordance with the criteria given in annex A to confirm the organic nature of the products and to identify possible alternatives that are more organic in nature, and they immediately inform the certification body when the ingredients are changed, after which an audit may be scheduled.
- c) Where less than 70 % of the ingredients are of certified organic origin, the indication that an ingredient is organic or organic-in-conversion shall only appear in the ingredient list.
- d) Potable water and salt that have been added to the ingredients shall not be included in the calculation of the percentage of organic ingredients.

4.9.7 No wording, mark, illustration, depiction or any other method of expression shall be used on a container that constitutes a misrepresentation, directly or by implication regarding the quality, nature, class, origin or composition of organically produced products and organically produced products in conversion.

4.9.8 No non-certified production system, although based on organic principles, shall refer to "organic" in any way, except as stated in 4.9.9.

4.9.9 The labelling of products endorsed in accordance with PGSs should always display the words "PGS Organic" on labelling and in advertising in the same font and font size. In outlets where products that are labelled "PGS Organic" are sold, notices should be posted that inform customers of the meaning of the words. Such notices should be supplied by PGS suppliers.

4.9.10 Until winemaking standards are developed, wine made from organic grapes shall be marked as "made from organic viticulture".

Annex A

(normative)

Criteria for the evaluation of input into organic agriculture

A.1 The input (products or substances, or both) that is utilized in organic agriculture shall be certified or verified as an approved input in organic production by an organization that is accredited to certify organic production processes.

A.2 If the input (products and substances, or both) to organic agriculture is not an organic input or certified by an approved organization that certifies organic products, but is allowed by the prescribed practices in this standard, then the following criteria (where applicable) shall be used to evaluate the input:

- a) the input shall be essential to achieve or to fulfil the specific needs or requirements for specific purposes which cannot be satisfied by the practices prescribed in this standard;
- b) the input shall be regularly evaluated and laboratory soil and leaf analyses shall be done, if necessary, to determine whether alternatives are available that are certified as organic, or that are in line with the principles of organic production, especially in cases where the input is conventional, but is permitted in accordance with the requirements of this standard;
- c) the input shall satisfy the principles of organic production as indicated in accordance with the definition for organic in this standard;
- d) the input shall be of plant, animal, microbial or mineral origin and shall be produced in accordance with the following processes:
 - 1) physical;
 - 2) enzymatic;
 - 3) microbial;
 - 4) process that is not synthetic.

NOTE Synthetic substances are substances that are formulated or manufactured by chemical processes or by processes that chemically changes substances that were extracted from naturally occurring plants or animal sources. This does not cover substances that were created by naturally occurring biological processes.

- e) the input shall not be genetically modified organisms and products;
- f) the input shall not be produced from factory farming;
- g) irradiation shall not be used in the production and processing of input;
- h) the input shall not result in unacceptable effects on the environment or shall not result in the contamination of the environment (it shall contribute to the improvement of the landscape and biodiversity);
- i) the input shall not have unacceptable effects on the quality and safety of the final food product;
- j) legally required input and treatments of plants, animals, buildings, equipment and facilities may be used and may include genetically modified organisms and products derived from such organisms (i.e. where there are no legal alternatives);

- k) input used shall comply with any other legislation applicable to the products or substances, and in the absence thereof the use shall be in accordance with good practice;
- l) all input shall be verified with the certification body before initial use;
- m) off-farm input for crop production shall not constitute the main source of nitrogen in the absence of complimentary and additional nitrogen generating practices on the farm.

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Annex B

(normative)

Fertilizers and soil conditioners

The substances that are listed in table B.1 shall be used as fertilizers and soil conditioners in the production and processing of organic agriculture.

Table B.1 — Fertilizers and soil conditioners

1	2
Substance ^a	Description, compositional requirements and conditions of use
Farmyard and poultry manure	<p>Products comprising a mixture of animal excrements and vegetable matter (animal bedding).</p> <p>Indication of animal species.</p> <p>Coming from extensive livestock farming, but if sourced from intensive livestock farming or not sourced from organic production systems, then the need for use thereof shall be motivated to the certification body, and it shall be composted.</p> <p>Forbidden if from factory farming origin.</p>
Slurry or urine (not from human origin)	<p>If not from organic sources, then the need for use thereof shall be motivated to the certification body.</p> <p>Use after controlled fermentation or appropriate dilution (or both).</p> <p>Factory farming sources shall not be used.</p> <p>Indication of animal species.</p>
Composted animal excrements, including poultry manure and composted farmyard manure	<p>Factory farming sources shall not be used.</p> <p>Indication of animal species.</p>
Dried farmyard manure and dehydrated poultry manure	<p>Indication of animal species.</p> <p>Originating from extensive livestock farming, but if from intensive livestock farming sources it shall be composted.</p> <p>Forbidden if from factory farming origin.</p>
Guano (bird and bat)	<p>Need for use thereof shall be motivated to the approved certification body.</p>
Composts from spent mushroom substrates and dejecta of worms and insects (vermiculture substrates)	<p>The initial composition is limited to products on this list.</p>
Products and by-products of plant origin for fertilizers	<p>Examples: oilseed cake meal, cocoa husks, malt culms.</p>

Table B 1 (continued)

1	2
Substance ^a	Description, compositional requirements and conditions of use
Composted or fermented organic household waste	<p>Compost made from ingredients listed below.</p> <p>Urban composts and household wastes from separated sources which are monitored for contamination.</p> <p>Maximum concentrations in milligrams per kilogram (mg/kg) of dry matter:</p> <p>a) cadmium: 0,7; b) copper: 70; c) nickel: 25; d) lead: 45; e) zinc: 200; f) mercury: 0,4; g) chromium (total): 70; h) chromium (VI): 0 (see annex F for limit in determination).</p>
Composted or fermented crop residues and plant materials, mulch, green manure, straw	Mixtures of plant matter which has been subjected to composting or anaerobic fermentation for biogas production.
Plant preparations and extracts (biodynamic preparations)	None.
<p>Products and by-products of animal origin from slaughterhouses and fish industries:</p> <p>a) blood meal; b) hoof meal; c) horn meal; d) bone meal or degelatinized bone meal; e) fish meal; f) meat meal; g) feather, hair and "chiquette" meal; h) wool; i) fur; j) hair; k) dairy products.</p>	<p>Monitoring of heavy metal contamination is necessary.</p> <p>Maximum concentration in milligrams per kilogram (mg/kg) of dry matter of chromium (VI): 0 (see annex F for limit in determination).</p>
Seaweeds and seaweeds products	<p>As far as obtained by physical processes including dehydration, freezing and grinding.</p> <p>Extraction with water or potassium hydroxide solutions (provided that the minimum amount of solvent necessary is used for extraction) and fermentation.</p>
Sawdust, composted bark and wood waste or chips	From wood not chemically treated after felling.
Wood ash and charcoal	From wood not chemically treated after felling.
Soft ground rock phosphate	Cadmium shall not exceed 90 mg/kg in P ₂ O ₅ .
Basic slag	None.
Crude potassium salt or kainite	Obtained by physical extraction process but not enriched by chemical processes.
Potassium sulfate, possibly containing magnesium salt	<p>Obtained by physical extraction process but not enriched by chemical processes.</p> <p>Derived from crude potassium salt.</p>
Calcium carbonate (for example chalk, marl, maerl, ground limestone, phosphate chalk, and Breton ameliorant)	Only of natural origin.

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Table B 1 (concluded)

1	2
Substance ^a	Description, compositional requirements and conditions of use
Magnesium and calcium carbonate (for example magnesium chalk and ground magnesium limestone)	Only of natural origin.
Industrial lime from sugar production	By-product of sugar production from sugar beet.
Industrial lime from vacuum salt production	By-product of the vacuum salt production from brine found in mountains.
Magnesium sulfate (kieserite)	Only of natural origin.
Gypsum (calcium sulfate)	Only of natural origin.
Stillage and stillage extracts	Ammonium stillage excluded.
Biodegradable processing of by-products of microbial origin, for by-products of brewery or distillery processing.	
Sodium chloride	Only mined salt.
Aluminium calcium phosphate	Cadmium shall not exceed 90 mg/kg in P ₂ O ₅ . Use limited to basic soils (pH > 7,5).
Trace elements (e.g. boron, copper, iron, manganese, molybdenum and zinc)	Use restricted to cases where soil/plant nutrient deficiency is documented by soil or tissue testing or diagnosed by an independent expert. Micronutrients in either chloride or nitrate forms are prohibited. Micronutrients may not be used as a defoliant, herbicide, or desiccant.
Sulfur	None.
Stone meal (pulverized rock, crushed stone)	None.
Clay (for example bentonite, vermiculite, perlite and zeolite)	None.
Preparations based on or containing naturally occurring biological organisms (or both)	None.
Peat	Excluding synthetic additives; permitted for seed, potting module composts, market gardening, floriculture, arboriculture, nursery (limited to horticulture).
Calcium chloride solution	Foliar treatment of apple trees after identification of deficit of calcium.
By-products of industries processing ingredients from organic agriculture	None.
Humates extracted with potassium hydroxide or water, or both.	Not permitted if extracted from sodium hydroxide.
^a Any substance or mixture used in organic agriculture shall be registered under the relevant national legislation (see foreword).	

Annex C
(normative)

Pest and disease control for plants

C.1 The substances listed in table C.1 shall be used to control plant pests and diseases, to manage weeds and to regulate growth.

Table C.1 — Substances and methods for plant pest and disease control, weed management and growth regulation

1	2
Substance ^a	Description, compositional requirements and conditions for use
Plants and animals	
Pyrethrums extracted from <i>Chrysanthemum cinerariaefolium</i> that possibly contains a synergist	Insecticide. The use of the synergist Piperonyl butoxide is prohibited.
Rotenone extracted from <i>Derris spp.</i> , <i>Lonchocarpus spp.</i> , <i>Terphrosia spp.</i>	Insecticide may not be used near waterways.
<i>Quassia</i> extracted from <i>Quassia amara</i>	Insecticide, repellent.
Azadirachtin extracted from <i>Azadirachta indica</i> (neem tree)	Insecticide.
Plant oils (e.g. mint oil, pine oil, and caraway oil)	Insecticide, acaricide, fungicide and sprout inhibitor.
Gelatine	Insecticide.
Lecithin	Fungicide.
Beeswax	Pruning agent.
Algal preparations	The use of algal preparations is allowed if they are obtained by the following processes: a) physical processes including dehydration, freezing and grinding; b) extraction with water or potassium hydroxide solutions, provided that the minimum amount of solvent necessary is used for extraction; c) fermentation.
Animal preparations and oils	None.
Chitin nematicides (natural origin)	Not processed by acid hydrolysis.
Coffee grounds	None.
Corn gluten meal	None.
Dairy products (e.g. milk, and casein)	None.
Natural acids (from example vinegar)	None.
Plant preparations	None.
Plant-based repellents	None.
Propolis	None.
Ryania (<i>Ryania speciosa</i>)	None.
Sabadilla	None.

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Table C 1 (continued)

1	2
Substance ^a	Description, compositional requirements and conditions for use
Minerals	
Copper salts (copper hydroxide, copper oxychloride, tribasic copper sulfate, cuprous oxide, copper octanoate)	Fungicide. Shall not exceed 6 kg copper per hectare per year (or both).
Lime sulfur (calcium polysulfide)	Fungicide, insecticide, acaricide.
Sulfur	Fungicide, acaricide, repellent.
Paraffin oil	Insecticide, acaricide.
Mineral oils	Insecticide, fungicide. Only in fruit trees, vines, olive trees and tropical crops (e.g. bananas).
Ethylene	Degreening bananas, kiwis and kakis. Degreening of citrus fruit only as part of a strategy for the prevention of fruit fly damage in citrus. Flower induction of pineapples. Sprouting inhibition in potatoes and onions.
Potassium aluminium (aluminium sulfate) (kalinite)	Prevention of ripening of bananas.
Silicates (e.g. sodium silicates, and quartz)	Repellent.
Calcium hydroxide	Fungicide. Only in fruit trees, including nurseries, to control <i>Nectria galligena</i> . For application on aerial plant parts only.
Potassium bicarbonate	Fungicide.
Silicates (e.g. sodium silicates, and quartz)	No restriction.
Chloride of lime (calcium chloride)	No restriction.
Clay (e.g. bentonite, perlite, vermiculite, zeolite)	No restriction.
Sodium bicarbonate	None.
Microorganisms that are used for biological pest controls and the products produced by them	
Microorganisms (bacteria, viruses, fungi), the <i>Bacillus thuringiensis</i> , <i>Granulosis virus</i>	None.
Spinosad	Insecticide. Only when measures are taken to minimize the risk to key parasitoids and to minimize the risk of development of resistance.
Other substances	
Potassium soap (soft soap)	Insecticide.
Release of parasites, predators and sterilized insects	None.
Biodynamic preparations	None.
Carbon dioxide	None.

Table C 1 (concluded)

1	2
Substance ^a	Description, compositional requirements and conditions for use
Ethyl alcohol	None.
Homeopathic and Ayurvedic preparations	None.
Traps, barriers and repellents	
Pheromones	Insecticide attractant: sexual behaviour disruptor. Only in traps and dispensers.
Pyrethroids (only deltamethrin or lambda cyhalothrin)	Insecticide. Only in traps with specific attractants. Only against <i>Batrocera oleae</i> and <i>Ceratitis</i> species.
Diammonium phosphate	Attractant. Only in traps.
Physical methods (e.g. chromatic traps, and mechanical traps)	None.
Mulches, nets	None.
Preparations to be surface-spread between cultivated plants	
Ferric phosphate (iron (III) orthophosphate)	Molluscicide.
^a Any substance or mixture used in organic agriculture shall be registered under the relevant national legislation (see foreword).	

C.2 Nature-identical products such as pheromones, which are chemically synthesized, may be considered if the products are not available in sufficient quantities in their natural form, provided that the conditions for their use do not directly or indirectly contribute to contamination of the environment or the product.

Annex D
(informative)

Determination of the acceptability of manure from non-organic sources

D.1 Organic principle

Organic farmers should not use manure or litter in their compost from husbandry systems which are inhumane in the management of livestock, i.e. from factory farming.

The factors that should be considered in this regard are listed in table D.1.

Table D.1 — Factors to consider when determining the appropriateness of animal-keeping practices

1	2	3
Consideration	Clause reference	Factory farming
Do animals have access to free range areas appropriate to the species and season?	4.3.2(a)(1) 4.3.2(a)(3) 4.3.2(a)(17)	No
Is the free movement of animals restricted in any way?	4.3.2(a)(2) 4.3.2(a)(15) 4.3.2(a)(16)	Yes
Are animals allowed to express their innate behaviour?	4.3.2(a)(8) 4.3.2(a)(17)	No
Are herd animals kept individually?	4.3.2(a)(10) 4.3.2(a)(15)	Yes, but not always
Do water fowl have access to a stream, pond or lake?	4.3.2(a)(19)	No
Is housing appropriate to the species?	4.3.2(a)(20) 4.3.2(b)	No
Are animals force fed or stimulated to consume above their natural quantity of feed?	4.3.2(g)(9) 4.3.2(h)	Yes
Are veterinary treatments administered in accordance with this standard?	4.3.2(m)	No
Are stocking densities in accordance with annex F?	4.3.2(a)(13) annex F	No

D.2 Additional questions when considering whether non-organic livestock manure may be accepted

D.2.1 Does the feed contain any prohibited substances (see 4.3.2(g))?

D.2.2 Is manure that come from operations extensive or intensive? A positive answer is acceptable and a negative one is unacceptable.

D.2.3 Is there nutrient cycling on the farm from cropping to livestock (as feed) and back to cropping (as manure)? A positive answer is acceptable and a negative one is unacceptable.

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Annex E

(normative)

Minimum surface areas and types of housing for different species and types of production

E.1 Minimum surface areas and types of housing for bovines, ovines, equidae and pigs

The minimum surface areas and types of housing for different species and types of production are given in tables E.1 and E.2.

Table E.1 — Surface areas and housing for bovines, ovines, equidae and pigs

1	2	3	4
Species and production types	Indoor area net area available to animals		Outdoor area exercise area, excluding pasturage
	Live mass min./kg	m ² /head	m ² /head
Breeding and fattening bovine and equidae	Up to 100	1,5	1,1
	Up to 200	2,5	1,9
	Up to 350	4,0	3
	Over to 350	5 with a minimum of 1 m ² /100 kg	3,7 with a minimum of 0,75 m ² /100 kg
Dairy cows		6	4,5
Bulls for breeding		10	30
Sheep and goats		1,5 sheep or goat 0,35 lamb or kid	2,5 with 0,5 per lamb or kid
Farrowing sows with piglets up to 40 d		7,5 sow	2,5
Fattening pigs	Up to 50	0,8	0,6
	Up to 85	1,1	0,8
	Up to 110	1,3	1
	Over 110 kg	1,5	1,20
Piglets	Over 40 d and up to 30 kg	0,6	0,4
Brood pigs		2,5 female	1,9
		6,0 male If pens are used for natural service: 10 m ² per boar	8,0

E.2 Minimum surface areas and types of housing for poultry

The minimum surface areas and types of housing for poultry are indicated in table E.2.

Table E.2 — Surface areas and housing for poultry

1	2	3	4	5
Types of poultry	Indoor area net area available to animals			Outdoor area m ² of area available in rotation per head
	No. of animals/m ²	centimetre perch per animal	nest	
Laying hens	6	18	7 laying hens per nest or in case of common nest 120 cm ² /bird	4, provided that the limit of 170 kg of nitrogen/ha/a is not exceeded
Fattening poultry in fixed housing	10 with a maximum of 21 kg live mass/m ²	(20 for guinea fowl only)		4 (broilers and guinea fowl) 4,5 (ducks) 10 (turkey) 15 (geese) In all the species mentioned above the limit of 170 kg of nitrogen/ha/a shall not be exceeded
Fattening poultry in mobile housing	16 in mobile poultry houses with a maximum of 30 kg live mass/m ² (Only in the case of mobile houses not exceeding 150 m ² floor space)			2,5, provided that the limit of 170 kg of nitrogen/ha/a is not exceeded

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Annex F

(informative)

Guidelines for the density of livestock

The density of livestock equivalent to 170 kg of nitrogen per hectare per year of agricultural area used is given in table F.1.

Table F.1 — Density of livestock equivalent to 170 kg of nitrogen per hectare per year

1	2
Class or species	Maximum number of animals per hectare equivalent to 170 kg of nitrogen/ha/year ^a
Equines over six months old	2
Calves for fattening	5
Other bovine animals less than one year old	5
Male bovine animals from one to less than two years old	3,3
Female bovine animals from one to less than two years old	3,3
Male bovine animals two years old or over	2
Breeding heifers	2,5
Heifers for fattening	2,5
Dairy cows	2
Other cows	2,5
Female breeding rabbits	100
Ewes	13,3
Goats	13,3
Piglets	74
Breeding sows	6,5
Pigs for fattening	14
Other pigs	14
Table chickens	580
Laying hens	230
^a 170 kg of nitrogen per hectare per year equals one livestock unit.	

Annex G (normative)

Products authorized for cleaning and disinfection

G.1 Requirements for maintaining the organic integrity of organic products

G.1.1 The products that are used to clean, disinfect and sanitize food handling equipment are different from those directly applied to food.

G.1.2 There shall be a clear management system for the cleaning and disinfection of the surfaces, machinery and processing facilities to prevent the contamination of organic products.

G.1.3 The contamination of organic products by cleaning, disinfecting and sanitizing substances shall be prevented by paying attention to the following aspects:

- a) the design of facilities, plant layouts, and equipment that prevent contamination of food and food contact surfaces by prohibited substances, non-organic ingredients, pests, disease-causing organisms and foreign material;
- b) the use of physical and mechanical means such as dry heat, moisture, exclusion, and non-chemical methods such as vacuum systems.

G.1.4 Only substances in H.3 may come into contact with organic products.

G.2 Other cleaning products

The following requirements apply in the case of products that do not maintain the integrity of organic products:

- a) cleansing by water or purging or another suitable method shall be applied after the chemical products have been used;
- b) the use of cleaning compounds shall minimize the disposal of effluent and the use of disinfectants;
- c) off-site grey water recycling is preferred to recirculation and disposal;
- d) equipment shall be fitted with steam traps and filters to remove non-volatile boiler water additives or sanitizers or shall not be used if the water or sanitizers are not easily removed by an intervening event (such as quaternary ammonia), or have an adverse impact on the environment (halogenated compounds).

G.3 Direct contact with organic products

The following cleansers and disinfectants may be in direct contact with organic products:

- a) acetic, citric, peracetic, formic, lactic and oxalic acids;
- b) alcohol, ethyl (ethanol);
- c) alcohol, isopropyl (isopropanol);
- d) calcium hydroxide (slaked lime);

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- e) calcium hypochlorite;
- a) calcium oxide (quicklime)
- g) chloride of lime (calcium oxychloride, calcium chloride, and calcium hydroxide);
- h) chlorine dioxide;
- i) hydrogen peroxide;
- j) natural essences of plants;
- a) ozone;
- l) phosphoric acid;
- m) plant extracts;
- n) potassium and sodium soaps;
- o) sodium carbonate;
- p) sodium hydroxide (caustic soda);
- q) sodium hypochlorite; and
- r) water and steam.

G.4 Buildings and installations

The substances in H.3 and the following substances may be used for the cleaning and disinfecting of buildings and installations:

- a) lime;
- b) caustic soda;
- c) caustic potash;
- d) nitric acid (dairy equipment only);
- e) phosphoric acid (dairy equipment only);
- f) formaldehyde.

G.5 Teats and milking facilities

Sodium carbonate may be used as a cleaning and disinfecting product for teats and milking facilities.

Annex H (normative)

Ingredients of non-agricultural origin

H.1 General

Substances of certified organic origin may be used if commercially available. If organic sources are not available, natural sources shall be used, if commercially available. Only if organic and natural sources are not available, synthetic forms of the substances in table H.1 may be used.

Table H.1 — Food additives, including carriers

1	2	3	4
E code	Name	Specific conditions and use in organic production	Requirements
406	Agar	Animal (milk based and meat products only) and plant product use.	Permissible emulsifiers, stabilizers and thickeners and the quantity allowed ^a .
400	Alginic acid	Animal (milk based products only) and plant product use.	Permissible emulsifiers, stabilizers and thickeners and the quantity allowed ^a .
503	Ammonium carbonates	Only for cereal products, confectionery, cakes and biscuits. Plant product use only.	Permissible acids, bases and salts and the quantity allowed ^b .
517	Ammonium sulfate	Only for wine, restricted to 0,3 mg/L.	c
160b	Anatto	Used in cheese production. Animal product use only.	Permitted at maximum level of 10 mg/kg as bixin in cheese.
414	Arabic gum	Animal and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
938	Argon	Animal and plant product use.	Processing aid
300	Ascorbic acid	Animal (meat products only) and plant product use.	Preservatives and antioxidants based on L-ascorbic acid.
901	Beeswax	Not applicable.	d
558	Bentonite	Plant product use only.	Processing aid.
160b	Bixin	Used in cheese production. Animal product use only.	Permitted at a maximum level of 10 mg/kg as bixin in cheese.
170	Calcium carbonate	All authorized functions except for colouring or calcium enrichment of products. Animal and animal product use.	Permissible acids, bases and salts and quantity allowed ^b .

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Table H.1 (continued)

1	2	3	4
E code	Name	Specific conditions and use in organic production	Requirements
509	Calcium chloride	Milk coagulation. Animal product use only	Processing aids.
516	Calcium sulfate	For carrier plant product use only. For soya bean products, confectionary and in baker's yeast.	Processing aids.
290	Carbon dioxide	Animal and plant product use.	Processing aids.
903	Carnauba wax	Not applicable	
407	Carageenan	Animal (milk based products only) and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
330	Citric acid	Animal (crustaceans and molluscs only) and plant product use.	Permissible acids, bases and salts and quantity allowed ^b .
412	Guar gum	Animal and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
428	Gelatine	Not applicable.	None.
422	Glycerol	Plant extracts. Plant product use only.	Processing aid.
939	Helium	Animal and plant product use only.	Processing aid.
464	Hydroxypropyl methyl cellulose	Encapsulation material for capsules. Animal and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
270	Lactic acid	Animal and plant product use.	Permissible acids, bases and salts and quantity allowed ^c .
322	Lecithin	Obtained without the use of bleaches and organic solvents. Animal (milk products only) and plant product use.	Permissible emulsifiers, stabilizers and thickeners and permissible quantity ^a .
410	Locust bean gum	Animal and plant product only) and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
504	Magnesium carbonates	Plant product use only.	Permissible acids, bases and salts and quantity allowed ^b .
511	Magnesium chloride	Only for soya bean products.	Processing aid.
296	Malic acid	Animal and plant product use.	Permissible acids, bases and salts and quantity allowed ^b .

Table H.1 (continued)

1	2	3	4
E code	Name	Specific conditions and use in organic production	Requirements
341i	Monocalcium phosphate	Raising agent for self-raising flour only. Plant product use only.	Permissible baking powder and chemical leavening substances ^e .
941	Nitrogen	Animal and plant product use.	Processing aid.
160b	Norbixin	Used in cheese production. Animal product use only.	Permitted at maximum level of 10 mg/kg as bixin in cheese.
948	Oxygen	Animal and plant product use.	Processing aid.
402	Potassium alginate	Animal (milk based products only) and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
501	Potassium carbonates	Plant product use only.	Permissible acids, bases and salts and quantity allowed ^b .
508	Potassium chloride	Not applicable.	Processing aids.
332	Potassium citrates	Not applicable.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed.
336	Potassium tartrates	Plant product use only.	Permissible acids, bases and salts and quantity allowed based on tartaric acid ^b .
440	Pectins (unmodified)	Animal (milk based products only) and plant product use.	Permissible emulsifiers.
551	Silicon dioxide	Anti-caking agent for herbs and spices. Plant product use only.	^d
401	Sodium alginate	Animal (milk based products) only and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
301	Sodium ascorbate	Animal product use only and only for meat products in connection with nitrates and nitrites.	Preservatives and antioxidants. L-ascorbic acid ^f .
500	Sodium carbonates	Dairy and plant product use.	Permissible acids, bases and salts and quantity allowed ^b .
331	Sodium citrates	Animal product use only.	Permissible acids, bases and salts and quantity allowed based on citric acid ^b .
524	Sodium hydroxide	Surface treatment of traditional bakery products and sugar processing. Plant product use only.	Processing aids.

Table H.1 (continued)

1	2	3	4
E code	Name	Specific conditions and use in organic production	Requirements
250 or 252	Sodium nitrite Potassium nitrate	For meat products. Need for use thereof shall be motivated to the approved certification body. Indicative ingoing amount expressed as NaNO ₂ : 80 mg/kg. Maximum residual amount expressed as NaNO ₂ : 50 mg/kg. Indicative ingoing amount expressed as NaNO ₃ : 80 mg/kg. For E252: Maximum residual amount expressed as NaNO ₃ : 50 mg/kg. Animal product use only.	Preservatives and antioxidants ^f . Preservatives and antioxidants ^f .
325	Sodium lactate	Milk-based and meat products. Animal product use only.	Permissible acids, bases and salts and quantity allowed based on lactic acid ^b .
223	Sodium metabisulphite	Animal product use only for crustaceans.	Preservatives and antioxidants ^a . Sulphur dioxide.
335	Sodium tartrates	Plant product use only.	Permissible acids, bases and salts and quantity allowed based on tartaric acid ^b .
513	Sulfuric acid	As processing aid for pH adjustment of water during sugar processing. As additive for wine and apple cider production.	^c

Table H.1 (concluded)

1	2	3	4
E code	Name	Specific conditions and use in organic production	Requirements
220	Sulphur dioxide	In fruit wines (wine made from fruit other than grapes) without added sugar (including cider and perry) or in mead: 50 g (expressed as SO ₂ in milligrams per litre (mg/L)).	c
or			
224	Potassium metabisulphite	For cider and perry prepared with addition of sugars or juice concentrate after fermentation: 100 mg (expressed as SO ₂ in milligrams per litre (mg/L)). Animal and plant product use	c
553b	Talc	Coating agent for meat products. Animal and plant product use.	Processing aid
184	Tannic acid	Filtration aid for wine. Plant product use only.	c
334	Tartaric acid (L(+)-)	Plant product use only.	Permissible acids, bases and salts and quantity allowed ^b .
306	Tocopherol-rich extract,	Antioxidant in fats and oils. Animal and plant product use.	d
413	Tragacanth gum	Not applicable.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
153	Vegetable carbon	Used in cheese production. Animal product use only.	Permitted as colourant in cheese.
415	Xanthan gum	Animal and plant product use.	Permissible emulsifiers, stabilizers and thickeners and quantity allowed ^a .
^a	In accordance with the relevant national legislation (see foreword).		
^b	In accordance with the relevant national department (see foreword).		
^c	In accordance with the relevant national legislation (see foreword).		
^d	In accordance with the Codex general standard for food additives (GSFA).		
^e	In accordance with the relevant national legislation (see foreword).		
^f	In accordance with the relevant national legislation (see foreword).		

H.2 Processing aids

Processing aids shall be safe for human consumption and may not be used to mislead or deceive the public. If a processing aid fulfils an additive related function, for example as a preservative, it shall be labelled accordingly in the end product only and shall be listed as a permissible additive for the particular function under the relevant national legislation (see foreword).

H.3 Flavouring substances

H.3.1 Natural flavouring substances

Substances and products shall be labelled as natural flavouring substances or natural flavouring preparations if allowed in accordance with the relevant national legislation (see foreword).

H.3.2 Permissible flavourings

The following flavourings are permissible:

- a) organic flavouring extracts (including volatile oils); and
- b) if organic flavouring extracts are not available, natural flavouring preparations approved by the relevant national legislation (see foreword). Such approval shall include an assessment that natural flavours shall meet the following criteria:
 - 1) the sources are plant, animal or mineral;
 - 2) the process of production is in accordance with a recognized organic standard;
 - 3) production is done by means of solvents such as vegetable oil, water, ethanol, carbon dioxide and mechanical and physical processes.

H.4 Water and salts

Drinking water (potable water) and salts (with sodium chloride or potassium chloride) as basic components are generally used in food processing.

H.5 Preparations of microorganisms and enzymes

Any preparations of microorganisms and enzymes that are normally used in food processing, with the exception of microorganisms that were genetically modified or enzymes that were derived from genetic modification are acceptable.

The following microorganisms and enzymes may be used as ingredients or processing aids with the approval from the relevant national legislation (see foreword):

- a) organic certified microorganisms;
- b) preparations of microorganisms;
- c) enzymes and enzyme preparations.

H.6 Minerals and other substances

Only minerals that are approved as their use is legally required (including trace elements, vitamins, essential fatty and amino acids), and other nitrogen approved compounds of the food products in which they are used are acceptable.

H.7 Carriers

Additives may contain carriers, which shall also be elevated.

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Annex I

(normative)

Processing aids for the preparation of products**I.1 General**

Substances of certified organic origin shall be used if commercially available. If organic sources are not available, natural sources shall be used if commercially available. Only if organic and natural sources are not available, synthetic forms of the substances may be used as indicated in table I.1.

Table I.1 — Substances of which synthetic forms may be used if organic products are not available

1	2
Substance	Specific conditions
Water	Potable water. Animal and plant product preparation.
Calcium chloride	Coagulation agent. Plant product preparation only. Primary yeast.
Calcium carbonate	Plant product preparation only.
Calcium hydroxide	Plant product preparation only.
Calcium sulfate	Coagulation agent. Plant product preparation only.
Magnesium chloride (or nigari)	Coagulation agent. Plant product preparation only.
Potassium carbonate	Drying of grape raisins. Plant product preparation only.
Carbon dioxide	Animal and plant product preparation. Primary yeast and yeast confections. Formulations.
Nitrogen	Animal and plant product preparation. Primary yeast and yeast confections. Formulations.
Oxygen	Primary yeast and yeast confections. Formulations.
Ethanol	Solvent. Animal and plant product preparation.
Tannic acid	Filtration aid. Plant product preparation only.
Egg white albumin	Plant product preparation only.
Casein	Plant product preparation only. Only for wine.
Gelatine	Plant product preparation only.
Isinglass	Plant product preparation only. Only for wine.
Vegetable oils	Greasing, releasing and antifoaming agent. Animal and plant product preparation. Primary yeast and yeast confections or formulations for greasing, releasing and also serves as an anti-foaming agent.
Silicon dioxide	As gel or colloidal solution. Plant product preparation only.
Activated carbon	Plant product preparation only.

Table I 1 (concluded)

1	2
Substance	Specific conditions
Talc	Plant product preparation only. Purity as required for E553b.
Bentonite	Purity as required for E558. Animal (sticking agent for mead only) and plant product preparation.
Kaolin	Purity as required for E558. Animal (propolis only) and plant product preparation.
Cellulose	Animal (gelatine production only) and plant product preparation.
Diatomaceous earth	Animal (gelatine production only) and plant product preparation.
Perlite	Animal (gelatine production only) and plant product preparation.
Hazelnut shells	Plant product preparation only.
Beeswax	Releasing agent. Plant product preparation only.
Carnauba wax	Releasing agent. Plant product preparation only.
Rice meal	Releasing agent. Plant product preparation only.
Sulphuric acid	Animal (gelatine production only) and plant product preparation (sugar production only).
Isopropanol (propan-2-ol)	In the crystallization process in sugar preparation.
Sodium hydroxide	Sugar production and oil production from rape seed. Plant product preparation only.
Ammonium hydroxide	Gelatine production. Animal product preparation only.
Hydrogen peroxide	Gelatine production. Animal product preparation only.
Sodium carbonate	Sugar production. Plant product preparation only. Primary yeast and yeast confections. Formulations for the regulation of the pH level.
Citric acid	Animal (regulation of the pH level of brine bath in cheese production only) and plant product preparation (oil production and hydrolysis of starch only). Primary yeast.
Hydrochloric acid	Gelatine production. Regulation of the pH level of brine bath in cheese production. Animal product preparation only.
Lactic acid	Animal product preparation only. (Regulation of the pH level of brine bath in cheese production only). Primary yeast.
Ethylene	Degreening of fruit and ripening.
Potato starch	Primary yeast and yeast confections. Formulations for filtering.
Preparations of bark	Only for sugar.

I.2 Preparations of microorganisms and enzymes

Any preparations of microorganisms and enzymes normally used as processing aids in food processing, with the exception of genetically modified organisms and enzymes derived from GMOs, are acceptable. The following organisms may be used as ingredients or processing aids with the approval from the certification body:

- a) organic certified microorganisms;
- b) preparations of microorganisms;
- c) enzymes and enzyme preparations.

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Bibliography

CAN/CGSB-32.310, *Organic production systems – General principles and management standards.*

IFOAM standard for organic production and processing.

SANS 1827, *The safety of water treatment chemicals for use in the food industry.*

SANS 1828, *Cleaning chemicals for use in the food industry.*

SANS 1853, *Disinfectants and detergent-disinfectants for use in the food industry.*

SANS 10049, *Food safety management – Requirements for prerequisite programmes (PRPs).*

SANS 10330, *Requirements for a Hazard Analysis and Critical Control Point (HACCP) system.*

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