



Government
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CAN/CGSB-32.311-2006

Supersedes part of CAN/CGSB-32.310-99

Amended October 2008,
December 2009 and June 2011

Reprinted

August 2011

Incorporating Corrigendum No. 1

Organic Production Systems Permitted Substances Lists

ICS 67.040



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ORGANIC PRODUCTION SYSTEMS PERMITTED SUBSTANCES LISTS

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS
FRANÇAISE ET ANGLAISE.

Prepared by the

Canadian General Standards Board 

Approved by the

Standards Council of Canada 

Published September 2006 by the
Canadian General Standards Board
Gatineau, Canada K1A 1G6

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Acknowledgment is made for the translation of this National Standard of Canada by the Translation Bureau of Public Works and Government Services Canada.

CAN/CGSB-32.311-2006

Amended October 2008, December 2009 and June 2011

Reprinted August 2011, incorporating Corrigendum No. 1

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**ORGANIC PRODUCTION SYSTEMS
PERMITTED SUBSTANCES LISTS**

PREFACE

This National Standard of Canada, *Organic Production Systems — Permitted Substances Lists*, was published in September 2006 and amended in October 2008 and December 2009. The standard, amended again in June 2011, includes significant changes in content and, consequently, a list of revised paragraphs has not been provided. This August 2011 reprint incorporates Corrigendum No. 1 published in July 2011.

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**ORGANIC PRODUCTION SYSTEMS
PERMITTED SUBSTANCES LISTS**

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CANADIAN GENERAL STANDARDS BOARD

**ORGANIC PRODUCTION SYSTEMS
PERMITTED SUBSTANCES LISTS**

INTRODUCTION (Informative)

Organic operations in Canada remain subject to all applicable laws and regulations. Substances that appear in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are subject to the *Pest Control Products Act* (PCPA) or the *Food and Drugs Act* (FDA) when used in Canada as pesticides or disinfectants. Health Canada's Pest Management Regulatory Agency (PMRA) is the federal authority responsible for the regulation of pest control products (including sanitizers) under the PCPA and Regulations. Disinfectants are regulated by Health Canada's Therapeutic Products Directorate (TPD) under the FDA and Regulations.

Substances that appear in CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*, are subject to the *Food and Drugs Act* (FDA) when used in Canada as veterinary drugs destined to food-producing animals and to the *Feeds Act* (FA) when used in Canada as livestock feed. Health Canada's Veterinary Drugs Directorate is the federal authority responsible for the regulation of veterinary drugs under the FDA and Regulations. Livestock feeds are regulated by the Animal Feed Division of the Canadian Food Inspection Agency under the FA and Regulations and the *Health of Animals Act* and Regulations.

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**ORGANIC PRODUCTION SYSTEMS
PERMITTED SUBSTANCES LISTS**

1. SCOPE

- 1.1 This standard¹ provides additional information to CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*. It consists of requirements for adding or amending permitted substances in the following lists, organized by category of use.
- 1.2 Quantities and dimensions in this standard are given in metric units with yard/pound equivalents, mostly obtained through soft conversion, given in parentheses. The metric units shall be regarded as official in the event of dispute or unforeseen difficulty arising from the conversion.

2. REFERENCED PUBLICATIONS

- 2.1 The following publications are referenced in this standard:
- 2.1.1 Canadian General Standards Board (CGSB)

CAN/CGSB-32.310 — *Organic Production Systems — General Principles and Management Standards*.
- 2.1.2 Canadian Council of Ministers of the Environment (CCME)

Guidelines for Compost Quality.
- 2.1.3 Ministère du Développement durable, de l'Environnement et des Parcs du Québec, Direction du milieu rural

Guidelines for the Beneficial Use of Fertilizing Residuals.
- 2.1.4 Pest Management Regulatory Agency (PMRA)

REG2007-04 — Regulatory Note: PMRA List of Formulants.
- 2.2 A dated reference in this standard is to the issue specified. An undated reference in this standard is to the latest issue. The sources are given in the Notes section.
- 3. REQUIREMENTS FOR ADDING OR AMENDING SUBSTANCES IN THE LISTS**
- 3.1 Section 10 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*, outlines the requirements for adding or amending substances in the lists.

¹ References throughout this document to “this standard” refer to CAN/CGSB-32.311, *Organic Production Systems — Permitted Substances Lists*.

4. PERMITTED SUBSTANCES LISTS FOR CROP PRODUCTION

4.1 **Classification** — Crop production substances are classified according to the following uses and applications:

- a. **Soil Amendments** are substances applied to the soil to improve fertility and tilth and to correct soil problems. Fertilizers, plant foods and soil amendments are primarily used for their plant nutrient content and may be applied to the soil or to the foliage of plants.
- b. **Crop Production Aids and Materials** are substances used in conjunction with other substances, which may or may not be directly applied to the crop or soil, or substances used to control pests (disease, weed or insect). Examples include
 - i. adjuvants, insect traps and plastic mulch;
 - ii. vertebrate animal pest management substances;
 - iii. plant disease management substances;
 - iv. insect pest management (invertebrates), mites, molluscs and crustacean substances;
 - v. nematode management substances.

4.2 **Soil Amendments and Crop Nutrition** — Unless otherwise specified, the soil amendments and crop nutrients listed below shall not contain substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*, or not permitted by this standard.

Substance Name(s)	Origin and Usage
Agar	For use in initial mushroom spawn production.
Alfalfa meal and pellets	Use organic alfalfa unless commercially unavailable. Ensure non-organic alfalfa is not a product of genetic engineering.
Algae	See <i>Aquatic plants and aquatic plant products</i> .
Amino acids, non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Non-synthetic amino acids may be used as plant growth regulators or chelating agents.
Animal manure	See sections 5 and 6 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> .
Animal manure, processed	Manures that are treated by mechanical and/or physical (including heat) methods and/or to which are added biological, mineral or other substances listed in par. 4.2 are allowed. Manure sources shall conform to par. 5.5.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> . The operator shall be able to demonstrate that best practices known to eliminate human pathogens during the treatment have been used or that the requirements in par. 5.5.2.5 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , have been met.
Aquatic plants and aquatic plant products	Shall not contain synthetic preservatives, such as formaldehyde. Natural (non-synthetic) extracts are allowed. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. The manufacturer shall prove the need to use sodium hydroxide.

Substance Name(s)	Origin and Usage
Ash	<p>Ash from plant and animal sources only. Ash from burning minerals, manure, coloured paper, plastics or other synthetic substances is prohibited.</p> <p>Ash obtained from off-farm sources shall not exceed the limits (category C1) for acceptable levels (mg/kg) of arsenic, cadmium, chromium, copper, lead and mercury specified in the <i>Guidelines for the Beneficial Use of Fertilizing Residuals</i>, published by the Quebec Ministère du Développement durable, de l'Environnement et des Parcs, Direction du milieu rural.</p> <p>Shall not cause buildup of heavy metals in soil over repeated applications.</p>
Basalt	Mined or quarried volcanic rock minerals.
Bentonite	See <i>Mined minerals and unprocessed mined minerals</i> .
Biodynamic preparations for soil and plants	
Biotite (iron, magnesium or aluminum silicates)	
Blood meal	Allowed only if sterilized.
Bone meal	Permitted only if guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older; and the distal ileum (portion of the small intestine) of cattle of all ages.
Borate	Shall only be used for a documented deficiency relative to the type of crop. See also <i>Boron products</i> .
Borax (sodium tetraborate)	See <i>Boron products</i> .
Boron products	The following soluble boron products may be used: sodium tetraborate (borax and anhydrous) and sodium octaborate. Shall only be used for a documented deficiency relative to the type of crop. See also <i>Trace elements (micronutrients)</i> for documentation requirements.
Calcium carbonate	See <i>Limestone</i> .
Calcium chloride	Natural sources only. May be used to adjust nutrient deficiencies and physiological disorders. Shall not cause buildup of salts in soil over repeated applications.
Calcium, natural sources	Sources include shells from aquatic animals.
Calcium sulphate (gypsum)	See <i>Gypsum (calcium sulphate)</i> .
Cannery wastes	Use only if organically grown or as composting feedstocks. See <i>Composting, feedstocks</i> for mandatory composting requirements.
Cardboard	Cardboard that is not waxed or impregnated with fungicide or substances not on these lists; may be used as mulch or compost feedstock.
Clay	Bentonite, perlite and zeolite as a soil amendment or seed pellet additive. These are also listed individually in this standard. See also <i>Mined minerals and unprocessed mined minerals</i> .
Compost	See <i>Compost obtained from off-farm sources, Compost produced on the farm, Compost tea, Composting feedstocks</i> .

Substance Name(s)	Origin and Usage
Compost obtained from off-farm sources	<p>Compost obtained from off-farm sources shall conform to the criteria in <i>Composting feedstocks</i>.</p> <p>In addition, compost obtained from off-farm sources</p> <ol style="list-style-type: none"> shall not exceed the maximum acceptable levels of trace contaminants (mg/kg) and foreign matter outlined for unrestricted use (Category A) compost as specified in the Canadian Council of Ministers of the Environment (CCME) publication <i>Guidelines for Compost Quality</i>, shall not cause a buildup of heavy metals in soil over repeated applications, shall meet criteria for acceptable levels (MPN/g total solids) of human pathogens as specified in the CCME publication <i>Guidelines for Compost Quality</i>. <p>See <i>Worm castings</i> for information on vermicompost; <i>Microbial products</i> for information on compost starters.</p>
Compost produced on the farm	<p>Compost produced on the farm shall conform to the criteria in <i>Composting feedstocks</i>.</p> <p>In addition if made from animal manures or other likely sources of human pathogens, compost produced on the farm shall</p> <ol style="list-style-type: none"> reach a temperature of 55°C (130°F) for a period of four consecutive days or more. The compost piles shall be mixed or managed to ensure that all of the feedstock heats to the required temperature for the minimum time; or meet limits for acceptable levels (MPN/g total solids) of human pathogens specified in the Canadian Council for Ministers of the Environment publication <i>Guidelines for Compost Quality</i>; or be considered as aged or raw manure rather than compost (i.e. meet the requirements specified in par. 5.5.2.5 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>). <p>See <i>Worm castings</i> for information on vermicompost; <i>Microbial products</i> for information on compost starters.</p>
Compost tea	<p>Compost tea shall be made from composts conforming to the criteria in <i>Compost produced on the farm</i> or <i>Compost obtained from off-farm sources</i> or <i>Worm castings</i>. Other substances listed in CAN/CGSB-32.311, <i>Organic Production Systems — Permitted Substances Lists</i>, may be added to compost tea.</p> <p>If compost tea is applied directly to the edible parts of plants, the operator shall be able to demonstrate that best practices known to eliminate pathogens during the processing have been used OR that the requirements for raw manure in par. 5.5.2.5 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>, have been met.</p> <p>See the definition of <i>Compost Tea</i> in section 3 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>.</p>

Substance Name(s)	Origin and Usage
Composting feedstocks	<p>Acceptable feedstocks include</p> <ul style="list-style-type: none"> a. animal manures conforming to par. 5.5.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>; b. animal, animal products and by-products (including fishery); c. plants and plant by-products (including forestry and source-separated yard debris, such as grass clippings and leaves); d. soils and minerals conforming to this standard and CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>. <p>The following are prohibited as composting feedstocks: sewage sludge; compost starter and feedstocks fortified with substances not included in this standard or prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>; leather by-products; glossy paper; waxed cardboard; paper containing coloured ink; and animal, animal products and animal by-products that are not guaranteed free of the risk materials specified in <i>Bone meal</i>.</p> <p>Except for animal manures, feedstocks that may be contaminated with substances not included in this standard or prohibited by par. 1.4.1 of CAN/CGSB-32.310, shall require documentation to confirm the absence of these substances OR documentation substantiating the common degradation of such contaminants during the composting process.</p> <p>See <i>Microbial products</i> for information on compost starters.</p>
Copper products	<p>These products shall be used in a manner that prevents excessive copper accumulation in the soil. Buildup of copper in soil may prohibit future use. Use with caution. No visible residue shall be allowed on harvested crops. Basic copper sulphate, copper oxide, copper sulphate and copper oxysulphate may be used to correct documented copper deficiencies. Copper ammonia base, copper ammonium carbonate, copper nitrate and cuprous chloride are prohibited as sources of copper for plant nutrients.</p>
Dolomite	See <i>Limestone</i> .
Enzymes	Acceptable if derived microbiologically from natural substances and not fortified with synthetic plant nutrients. Ensure enzymes are not obtained through genetic engineering.
Epsom salts	See <i>Magnesium sulphate</i> .
Feather meal	
Feldspar	See <i>Mined minerals and unprocessed mined minerals</i> .
Ferric and ferrous compounds	Includes ferric oxide, ferric sulphate and ferrous sulphate. See <i>Iron products, Trace elements (micronutrients)</i> .
Fish emulsions or solubles	See <i>Fish products</i> .
Fish farm wastes	Shall be composted.
Fish hydrolysate	See <i>Fish products</i> .
Fish meal, powder	<p>Natural substances or those derived from natural substances, without the addition of ethoxyquin or other chemically synthesized substances or chemical treatment. See also <i>Fish products</i>.</p>

Substance Name(s)	Origin and Usage
Fish products	Natural substances or those derived from natural substances without the addition of ethoxyquin or other chemically synthesized substances or chemical treatment except that liquid fish products as soil and plant amendments may be pH adjusted with (in preferential order) organic vinegar, organic citric acid, phosphoric acid or sulphuric acid. The amount of acid used shall not exceed the minimum needed to reach pH 3.5. Shall not contain synthetic preservatives or fertilizing substances not listed in this standard.
Granite dust	Sources that are mixed with petroleum products, such as from stone engraving, are prohibited. See also <i>Mined minerals and unprocessed mined minerals</i> .
Greensand (glauconite)	See <i>Mined minerals and unprocessed mined minerals</i> .
Guano, bat or bird	Shall be decomposed, dried deposits from wild bats or birds. Domesticated fowl excrement is considered <i>manure</i> , not guano. See <i>Compost</i> .
Gypsum (calcium sulphate)	Mined source; for correcting calcium and sulphur deficiencies and for amending soil salinity problems documented by soil and plant tissue testing. Sulphates produced using sulphuric acid are prohibited.
Humates, humic acid and fulvic acid	Permitted if extracted by microbial fermentation or potassium hydroxide. Shall not exceed the limits (category C1) for acceptable levels (mg/kg) of arsenic, cadmium, chromium, copper, lead and mercury specified in the <i>Guidelines for the Beneficial Use of Fertilizing Residuals</i> , published by the Quebec Ministère du Développement durable, de l'Environnement et des Parcs, Direction du milieu rural. Potassium hydroxide levels used in the extraction process may not exceed the amount required for extraction.
Humus from worms and insects (vermicompost)	See <i>Worm castings</i> .
Inoculants	See <i>Microbial products</i> .
Iron products	Ferric oxide, ferric sulphate, ferrous sulphate, iron citrate, iron sulphate or iron tartrate may be used where a soil or plant nutrient-deficiency is documented by soil or tissue testing.
Iron sulphates	Sulphates produced using sulphuric acid are prohibited. See also <i>Iron products</i> .
Kelp and kelp products	See <i>Aquatic plants and aquatic plant products</i> .
Kieserite	See <i>Magnesium sulphate, Mined minerals and unprocessed mined minerals</i> .
Langbeinite	Mined sulphate of potash magnesia.
Leaf mould	
Limestone	Magnesium carbonate and calcium carbonate. May cause buildup of magnesium. Use with caution. Shall be from a natural source. Oyster shell flour, limestone, dolomite (not slaked), aragonite, eggshell meal, lime from sugar processing and mined calcium carbonate are acceptable. Calcium products that have been used in controlled atmosphere storage are prohibited.
Magnesium carbonate	Naturally occurring in dolomite and magnesite.
Magnesium chloride	Natural sources only.
Magnesium rock	Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatments. See also <i>Mined minerals and unprocessed mined minerals</i> .
Magnesium sulphate	Allowed for use with a documented magnesium deficiency. Mined as kieserite or epsom salts (see also <i>Mined minerals and unprocessed mined minerals</i>) or synthetically produced epsom salts.
Manganese products	Manganous oxide and manganese sulphate may be used to correct documented manganese deficiencies. See <i>Trace elements (micronutrients)</i> .

Substance Name(s)	Origin and Usage
Manure, composted	See <i>Compost</i> .
Manure, non-organic manure source	See conditions in par. 5.5 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> .
Mica	See <i>Mined minerals and unprocessed mined minerals</i> .
Microbial products	Allowable microbial products include rhizobium bacteria, mycorrhizal fungi, azolla, yeast and other micro-organisms on compost, plants, seeds, soils and other components of the organic operation. Ionizing radiation is allowed for use on peat moss carrier only, before the addition of microbial inoculants. Radiation is otherwise prohibited.
Micronutrients, synthetic	See <i>Trace elements (micronutrients)</i> .
Milk	
Mined minerals and unprocessed mined minerals	A mined mineral shall not have undergone any change in its molecular structure through heating or by combining with other substances. Acceptable if the substance is not processed or fortified with synthetic chemicals. Mined minerals are regarded as supplements to a balanced, organic soil-building program. Some of the minerals that are mined can also be made synthetically or are by-products of industry; investigate the source of any new substance. Sodium nitrate is prohibited.
Molasses	Shall be organic molasses unless not commercially available.
Molybdenum products	To correct documented molybdenum deficiencies. See also <i>Trace elements (micronutrients)</i> .
Mulches	Organic plant residue: where organic materials are not readily available, non-organic straw, leaves, grass clippings or hay that are not the products of genetic engineering may be used. Substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , shall not have been used on these materials for at least 60 days before harvest. Sawdust, wood chips and shavings: permitted for mulching if they are from natural sources or derive from natural substances and if they are from wood, trees or logs that have not been treated with paint or substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> . Newspaper mulch: glossy paper and coloured ink are prohibited. Paper: glossy paper and coloured ink are prohibited.
Mushroom compost	See <i>Compost</i> .
Naturally occurring biological organisms (e.g. worms) and their products	See <i>Worm castings</i> .
Oilseed meals	Use organic sources unless commercially unavailable. Shall not be from genetically engineered oilseeds.
Oyster shell lime	Ground shells from oysters. See also <i>Limestone</i> .
Peat moss	
Perlite	
Phosphate rock	Shall not be fortified or processed with synthetic chemicals. Cadmium shall not exceed 90 mg/kg P ₂ O ₅ .

Substance Name(s)	Origin and Usage
Plants and plant by-products	Includes plant preparations of aquatic or terrestrial plants or parts of plants, such as cover crops, green manures, crop wastes, hay, leaves and straw. Parts of plants used as soil amendments and foliar feeds are permitted. Wastes from crops that have been treated or produced with substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , are prohibited. Only substances listed in par. 6.3 and 6.6 may be used in the processing of plant by-products. Plant by-products not meeting this restriction may be used as composting feedstocks. Sawdust, wood chips and shavings: permitted if they are from natural sources or derive from natural substances and if they are from wood, trees or logs that have not been treated with paint or substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> .
Pomaces	Feedstocks shall be from organically grown fruits or vegetables, or the material shall be aerobically composted before use.
Potassium chloride (muriate of potash and rock potash)	Mined potassium salts (e.g. sylvinite and kainite). Shall not cause buildup of salts in soil over repeated applications.
Potassium rock powders	Includes basalt, biotite, mica, feldspars, granite and greensand.
Potassium sulphate	Only if from langbeinite or other natural sources. See also <i>Mined minerals and unprocessed mined minerals</i> .
Potassium sulphate magnesia	Langbeinite.
Potting soil	Shall not contain synthetic wetting agents or synthetic fertilizers.
Pumice	
Rock dusts (stone meal), unprocessed	See <i>Mined minerals and unprocessed mined minerals</i> .
Sand	
Seaweed and seaweed products	See <i>Aquatic plants and aquatic plant products</i> .
Shells from aquatic animals	
Soil	From organic sources in accordance with this standard for 36 months.
Sphagnum moss	Shall not contain synthetic wetting agents.
Stillage and stillage extract	Ammonium stillage is prohibited.
Sulphate of potash magnesia	From langbeinite. See also <i>Mined minerals and unprocessed mined minerals</i> . Natural substances or those derived from natural substances, without the addition of chemically synthesized substances or chemical treatment.
Sulphates of zinc or iron	May be used only to correct for deficiencies determined by soil or plant tissue testing. Sulphates produced using sulphuric acid are prohibited. See also <i>Iron products</i> .
Sulphur, elemental	Sulphur may be used as a soil amendment where more buffered sources of sulphur are not appropriate, and as a foliar application. Natural substances or those derived from natural substances without the addition of chemically synthesized substances or chemical treatment.
Trace elements (micronutrients)	Includes micronutrients from natural sources that are unchelated or chelated by substances listed as allowed. To be used when soil and plant deficiencies are documented by soil and plant testing.

Substance Name(s)	Origin and Usage
Vermicasts	See <i>Worm castings</i> .
Vermiculite	
Vitamins	Non-synthetic sources of all vitamins and synthetic sources of vitamins B ₁ , C (ascorbic acid) and E may be used in organic crop production.
Wood ash	See <i>Ash</i> .
Worm castings	Worm castings (also called vermicompost, worm compost, vermicast, worm humus or worm manure) are the end product of the breakdown of organic matter and compounds by some earthworm species. Feedstocks for these earthworms shall meet the criteria in <i>Composting feedstocks</i> . The operator shall be able to demonstrate that worm castings produced on the farm and obtained from off-farm sources meet the limits for acceptable levels (MPN/g total solids) of human pathogens specified in the Canadian Council of Ministers of the Environment publication <i>Guidelines for Compost Quality</i> OR that best practices known to eliminate human pathogens during vermicomposting have been used. See <i>Microbial products</i> for information on compost starters.
Yeast	See <i>Microbial products</i> .
Zeolite	See <i>Mined minerals and unprocessed mined minerals</i> .
Zinc products	Zinc oxide and zinc sulphate may be used to correct a documented zinc deficiency.

4.3

Crop Production Aids and Materials — Unless otherwise specified, the crop production aids and materials listed below shall not contain substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*, or not permitted by this standard

Substance Name(s)	Origin and Usage
Acetic acid	As an adjuvant and pH regulator.
Adhesives for sticky traps and barriers	
Alcohol	Non-synthetic ethyl alcohols are allowed as solvents to extract botanical insecticides.
Amino acids, non-synthetic	Amino acids produced by plants, animals and micro-organisms that are not from genetic engineering and that are extracted or isolated by hydrolysis or by physical or other non-chemical means are considered non-synthetic. Non-synthetic amino acids may be used as plant growth regulators or chelating agents.
Ammonium carbonate	As an attractant in insect traps.
Aquatic plants and aquatic plant products	Shall not contain synthetic preservatives, such as formaldehyde. Natural (non-synthetic) extracts are allowed. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. The manufacturer shall prove the need to use sodium hydroxide.
Arthropod pathogens	See <i>Biological organisms</i> .
Arthropod predators and parasitoids	See <i>Biological organisms</i> .
Arthropods	See <i>Biological organisms</i> .
Ascorbic acid (vitamin C)	Synthetic and non-synthetic sources may be used as a pH regulator. Only non-synthetic sources may be used for promoting natural growth.
Baits for rodent traps	Baits shall not contain synthetic substances.
Bentonite	See <i>Mined minerals and unprocessed mined minerals</i> in par. 4.2.

Substance Name(s)	Origin and Usage
Biodynamic preparations for compost	
Biological organisms	Living organisms that benefit plant production by reducing pest populations, such as <i>Bacillus thuringiensis</i> , spinosad, granulosis (e.g. viruses, bacteria, protozoa, fungi, insects and nematodes). No organisms from genetic engineering.
Borate	Sodium tetraborate and octaborate may be used as wood preservatives. Only mined sources acceptable.
Boric acid	May be used for structural pest control (i.e. ants). No direct contact with organic food or crops is allowed.
Botanical pesticides	Botanical pesticides shall be used in conjunction with a biorational pest management program but shall not be the primary method of pest control in the farm plan. The least toxic botanicals shall be used in the least ecologically disruptive way possible. All label restrictions and directions shall be followed including restrictions concerning crops, livestock, target pests, safety precautions, pre-harvest intervals and worker re-entry.
Calcium chloride	Natural sources and food-grade quality only. May be used to adjust nutrient deficiencies and physiological disorders.
Calcium lignin sulphonate	See <i>Lignin sulphonates</i> .
Calcium polysulphide	See <i>Lime sulphur</i> .
Carbon dioxide	For soil and greenhouse use and for controlled atmosphere storage.
Chelates	Natural chelates and synthetic chelates specifically included for that purpose in this standard are allowed. See <i>Lignin sulphonates</i> .
Cholecalciferol (vitamin D ₃)	May be used outdoors and inside greenhouses for rodent control when methods described in par. 5.6.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , have failed. Not allowed inside on-farm food processing and food storage facilities.
Citric acid	Non-synthetic and synthetic sources may be used as a chelating agent and a pH adjuster.
Copper products	Includes copper hydroxide for use as a wood preservative or for disease control; copper sulphates for use as a fungicide; Bordeaux mix, copper oxychloride, copper oxide, fungicides or wood treatments, for fruits and vegetables. These products shall be used in a manner that prevents excessive copper accumulation in the soil. Buildup of copper in soil may prohibit future use. Use with caution. No visible residue shall be allowed on harvested crops. Basic copper sulphate, copper oxide, copper sulphate and copper oxysulphate may be used to correct documented copper deficiencies. Copper ammonia base, copper ammonium carbonate, copper nitrate and cuprous chloride are prohibited as sources of copper for plant nutrients.
Cytokinins	See <i>Growth regulators for plants</i> .
Diatomaceous earth	Only non-heated forms may be used. Make sure no synthetic pesticides or synergists are added.
Dormant oils	Allowed for use as a dormant spray on woody plants only.
Ferric phosphate (iron orthophosphate, iron phosphate)	Permitted as molluscicide. To be used in such a way as to prevent runoff into water bodies. Shall not be in contact with crops.
Fibre row covers	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season.

Substance Name(s)	Origin and Usage
Formulants	Formulants can only be used in conjunction with substances listed in par. 4.3. Only formulants that are classified by the Pest Management Regulatory Agency (PMRA) in Regulatory Note REG2007-04 as List 4A or 4B or are non-synthetic may be used with substances in par. 4.3 that are applied directly to crops. Formulants classified as List 3 in PMRA Regulatory Note REG2007-04 may be used with passive pheromone dispensers. Formulants classified as List 1 or List 2 in PMRA Regulatory Note REG2007-04 are prohibited.
Gibberellic acid	Acceptable if made from a fermentation process. Fermentation process shall not use organisms from genetic engineering. See also <i>Growth regulators for plants</i> .
Growth regulators for plants	Natural plant hormones, such as gibberellic acid, indoleacetic acid and cytokinins, are allowed. See also <i>Gibberellic acid</i> .
Hormones	See <i>Growth regulators for plants</i> .
Hydrated lime	For plant disease control only.
Hydrogen peroxide	Hydrogen peroxide is not allowed in maple syrup production. Allowed for use as a fungicide.
Indoleacetic acid	See <i>Growth regulators for plants</i> .
Kaolin clay	
Lignin sulphonates	Lignosulphonic acid, calcium lignosulphate and sodium lignosulphate. Allowed as a chelating agent, as a formulant ingredient and as a dust suppressant. Ammonium lignosulphate is prohibited.
Lime sulphur (calcium polysulphide)	Allowed as a fungicide, an insecticide and an acaricide (mite control) on plants.
Magnesium chloride	Natural sources only.
Mulches	<p>Organic plant residue: permitted for mulching. Where organic materials are not readily available, non-organic straw, leaves, grass clippings or hay that are not the products of genetic engineering may be used. Substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>, shall not have been used on these materials for at least 60 days before harvest.</p> <p>Sawdust, wood chips and shavings: permitted for mulching if they are from natural sources or derive from natural substances and if they are from wood, trees or logs that have not been treated with paint or substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>.</p> <p>Newspaper mulch: glossy paper and coloured ink are prohibited.</p> <p>Paper: glossy paper and coloured ink are prohibited.</p> <p>Plastic mulches: non-biodegradable and semi-biodegradable materials shall not be incorporated into the soil or left in field to decompose; shall be removed at the end of the growing season. Plastic mulches in perennial crops may be left for more than one season but shall be removed before the plastic decomposes. Use of polyvinyl chloride as plastic mulch or row cover is prohibited.</p> <p>Fully biodegradable films: permitted without removal if they do not contain substances prohibited by par. 1.4.1 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i>.</p>
Nitrogen	For controlled atmosphere storage.
Oxygen	For controlled atmosphere storage.
Peracetic acid	For use in controlling fire blight bacteria and in disinfecting seed and asexually propagated planting material.

Substance Name(s)	Origin and Usage
pH buffers	Shall be from a natural source, such as citric acid or vinegar. Lye and sulphuric acid are prohibited.
Pheromones and other semiochemicals	Allowed for use in pheromone traps or dispensers. Both synthetic and non-synthetic pheromones and semiochemicals may be used for pest control.
Plant extracts, oils and preparations	Allowed for use as production aids unless otherwise specifically restricted or prohibited. Allowed extractants include cocoa butter, lanolin, animal fats, alcohols and water. Allowed for pest (disease, weed and insect) control. Extraction with synthetic solvents is prohibited except for potassium hydroxide or sodium hydroxide, provided the amount of solvent used does not exceed the amount necessary for extraction. Of the two products, potassium hydroxide is the preferred choice; the manufacturer shall prove the need to use sodium hydroxide.
Plant protectants, natural	Substances that protect plants from harsh environmental conditions such as frost and sunburn, infection, the buildup of dirt on leaf surfaces, or injury by a pest. Natural substances are allowed, including but not limited to calcium carbonate, diatomaceous earth, kaolin clay, pine oil, pine resin and yucca. White wash is allowed for use on trees to protect against sunburn and southwest disease.
Plastic for row covers and solarization	Shall not be incorporated into the soil or left in the field to decompose; shall be removed at the end of the growing season. Use of polyvinyl chloride plastic is prohibited.
Potassium bicarbonate	Allowed for pest and disease control in greenhouses and other crops.
Pyrethrum	May only be combined with acceptable formulants listed in par. 4.3. See also <i>Botanical pesticides</i> for restrictions.
Quick lime	Also known as calcium oxide. Prohibited as a fertilizer or soil amendment.
Repellents	Acceptable if derived from a natural source, such as sterilized blood meal, rotten eggs, hair or predator scents, provided synthetic additives are not used.
Rotenone	Shall not be combined with unacceptable formulants. See also <i>Botanical pesticides</i> for restrictions.
Seaweed and seaweed products	See <i>Aquatic plants and aquatic plant products</i> .
Seed treatments	Microbial products, kelp, yucca, gypsum, clays, botanicals, and any substances and formulants that appear in par. 4.3 with consistent origin and usage permitted for use as treatments on organic seed.
Soaps	Soaps (including insecticidal soaps) consisting of fatty acids derived from animal or vegetable oils are allowed.
Soaps, ammonium	As a large animal repellent only; no contact with soil or edible portion of crop allowed.
Sodium bicarbonate	Allowed for pest and disease control in greenhouses and other crops.
Sodium silicate	For tree fruit and fibre processing.
Sterile insects	See <i>Biological organisms</i> .
Sugar	Organic sugar may be used as an ingredient in a crop production aid.
Sulphur (smoke bombs)	Sulphur smoke bombs used for rodent control shall be used in conjunction with other methods and only when a full pest control program is maintained but temporarily overwhelmed.
Sulphur, elemental	Allowed for foliar use only.
Summer oils	Allowed for use in organic production as suffocating or stylet oils on foliage.
Surfactants	See <i>Soaps</i> .
Transplant and potting media	Shall be composed entirely of allowed substances.

Substance Name(s)	Origin and Usage
Treated seed, non-synthetic agents	Seed treated with naturally occurring biological management agents are allowed. Organisms from genetic engineering are prohibited. Seed pelletized with clay, gypsum, rhizobial bacteria or other non-synthetic coatings is allowed. Plastic polymer pelletization of seed is prohibited. See also <i>Seed treatments</i> .
Tree seals	Plant or milk-based paints may be used. Synthetic grafting materials are permitted on planting stock provided that the organic products are harvested after such plants have been maintained in accordance with this standard for at least 12 months. Shall not be combined with fungicides or other synthetic chemicals.
Vegetable oils	Spreader-stickers, surfactants and carriers. Plant oils shall not contain synthetic pesticides.
Vinegar (acetic acid)	See Acetic acid. Non-synthetic sources unless commercially unavailable.
Virus sprays	
Water	
Water, reclaimed	Reclaimed water shall be used only on non-edible parts of food crops and on crops not for human consumption. Use on edible plant parts and root crops is prohibited.
Wetting agents	Natural wetting agents, including saponins and microbial wetting agents, are allowed. See also <i>Soaps</i> .

5. PERMITTED SUBSTANCES LISTS FOR LIVESTOCK PRODUCTION

5.1 **Classification** — Livestock production substances are classified according to the following uses and applications:

a. **Feed, Feed Additives and Feed Supplements**

b. **Health Care Products and Production Aids** — Health care products include medications, remedies, parasiticides and other substances used to maintain or restore the well-being of an animal. Production aids include all other substances used on animals and their living areas, such as bedding and dips.

5.2 Feed, Feed Additives and Feed Supplements

Note: *In Canada, livestock feed must meet the compositional and labelling standards of the Feeds Regulations, 1983. Ingredients used in livestock feed must be approved and listed in Schedule IV or V of the Feeds Regulations, 1983. Some ingredients and products require registration (e.g. enzymes and milk replacers).*

Substance Name(s)	Origin and Usage
Amino acids	Non-synthetic sources only. Exception granted for use of synthetic DL-methionine, DL-methionine—hydroxy analog and DL-methionine—hydroxy analog calcium. Note: This exception will be re-evaluated at the next revision of this standard.
Antioxidants	Non-synthetic sources only. Water, alcohol, acid and base extracts that are permitted by this standard only.
Diatomaceous earth	Approved as an anti-caking agent in feed to a maximum of 2% of the total diet.
Energy feeds and forage concentrates (grains) and roughages (hay, silage, fodder, straw)	Shall be obtained from organic sources and may include silage preservation products (e.g. bacterial or enzymatic additives derived from bacteria, fungi and plants and food by-products [e.g. molasses and whey]). Note that if weather conditions are unfavourable to fermentation, lactic, propionic and formic acid may be used.

Substance Name(s)	Origin and Usage
Enzymes	Natural substances are permitted, including, as examples, bromelain, catalase—bovine liver, ficin, animal lipase, malt, pancreatin, pepsin, trypsin, proteases and carbohydrases. Animal-derived enzymes shall be guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of ruminants aged 30 months or older; and the distal ileum (portion of the small intestine) of ruminants of all ages. Shall be from an organic source unless not commercially available.
Micro-organisms and yeasts	
Milk replacer	From organic sources when commercially available. Only without antibiotics and animal fats, by-products, and for emergency use only.
Minerals, trace minerals, elements	Non-synthetic chelated or sulphated minerals such as but not limited to calcium chloride. Synthetic nutrient minerals may be used when non-synthetic sources are not commercially available. Minerals may not be used to stimulate growth or production.
Molasses	May be used as a flavouring agent; shall be organic unless commercially unavailable.
Pre-mixes	Concentrated mixture of minerals and vitamins; all ingredients shall be organically sourced, where applicable, and shall be essential for animal nutrition.
Probiotics	
Protein feeds	Shall be from organic sources.
Seaweed meal	
Vitamins	Used for enrichment or fortification of livestock feed. Synthetic vitamins may be used if non-synthetic sources are not commercially available.

5.3

Health Care Products and Production Aids

Substance Name(s)	Origin and Usage
Acetylsalicylic acid	Aspirin.
Activated charcoal	Plant sources only.
Alcohol, ethyl (ethanol)	Allowed as a disinfectant and sanitizer only.
Alcohol, isopropyl	Allowed as a disinfectant only.
Antibiotics	See par. 6.7 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , for conditions on antibiotic use in livestock. See also <i>Antibiotics, oxytetracycline</i> .
Antibiotics, oxytetracycline	For emergency use for bees. The equipment shall be destroyed, in accordance with par. 7.1.14.7 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , but the bees need not be destroyed if they are taken out of organic production and treated with oxytetracycline.
Anti-inflammatories	For health care use, to reduce inflammation. Preference shall be given to natural alternatives.

Substance Name(s)	Origin and Usage
Biologics, including vaccines	<p>Organisms from genetic engineering or their products (e.g. recombinant gene technology) are prohibited, except vaccines that have been grown on genetically engineered substrates but are not themselves a product of genetic engineering provided that</p> <ol style="list-style-type: none"> there is documented evidence that the targeted diseases are communicable to livestock on the enterprise and cannot be combated by other means, and an analogous vaccine grown on a substrate not produced from genetic engineering is not commercially available and a reasonable search of veterinary suppliers has been conducted. <p>This exception shall be reviewed before the end of 2012.</p>
Botanical compounds	Botanical preparations according to label specifications.
Calcium borogluconate	For milk fever. No withdrawal period required.
Chlorohexidine	For surgical procedures conducted by a veterinarian. Allowed for use as a post-milking teat dip when alternative germicidal agents and physical barriers have lost their effectiveness.
Colostrum whey	Probiotic.
Colostrum	Shall be organic unless commercially unavailable.
Copper sulphate	For use as an essential nutrient (source of copper and sulphur) and for topical use (foot baths). Sulphates produced using sulphuric acid are prohibited.
Diatomaceous earth	For use in control of external parasites.
Electrolytes	Without antibiotics.
Electrolyte solutions	With no added active ingredients.
Formic acid	For apicultural use to control parasitic mites. This substance may be used after the last honey harvest of the season and shall be discontinued 30 days before the addition of honey supers.
Formulants (inerts, excipients)	Can only be used in conjunction with substances listed in par. 5.3.
Glucose	
Glycerin	For use as a livestock teat dip; shall be produced through the hydrolysis of fats or oils.
Homeopathic and biotherapies	
Honey	Organic honey is allowed.
Hydrogen peroxide	External use (disinfectant): pharmaceutical grade. Internal use (e.g. livestock drinking water): food grade.
Iodine	For use as a topical disinfectant. Sources include potassium iodide and elemental iodine. As a cleaning agent, shall be followed by a hot-water rinse. Non-elemental only; not to exceed 5% solution by volume (e.g. iodophors).
Iron products	May be supplied by ferric phosphate, ferric pyrophosphate, ferrous lactate, ferrous sulphate, iron carbonate, iron gluconate, iron oxide, iron phosphate, iron sulphate or reduced iron.
Lime, hydrated	Not permitted to cauterize physical alterations or deodorize animal wastes.
Local anesthetics	Use requires a withdrawal period of 90 days after administering to livestock intended for slaughter, and 7 days after administering to dairy animals. Preference shall be given to natural alternatives.

Substance Name(s)	Origin and Usage
Magnesium sulphate	Mined sources only. A source of magnesium and sulphur. Sulphates produced using sulphuric acid are prohibited.
Mineral oil	For external use only.
Minerals, trace minerals, elements	Non-synthetic chelated or sulphated minerals such as but not limited to calcium chloride. Synthetic nutrient minerals may be used when non-synthetic sources are not commercially available. Minerals may not be used to stimulate growth or production. Minerals from any source are allowed for medical use.
Oxalic acid	For the control of mites in honeybee colonies.
Oxytocin	For postparturition therapeutic use only. Meat from treated animals will not lose its organic status. See par. 6.7.6 d. of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , for mandatory withdrawal time requirement.
Parasiticides and anti-microbials	See par. 6.7 of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> , for conditions regarding the use of internal parasiticides.
Plant oils	To control external parasites.
Rotenone	For external parasites, rotenone shall not be combined with unacceptable formulants. See also <i>Botanical pesticides</i> in par. 4.3 for restrictions.
Selenium products	May be derived from sodium selenate or sodium selenite. See <i>Minerals, trace minerals, elements</i> . May be used where documented deficiencies in the stock, soils or feed supplies exist.
Sulfur	For control of external parasites.
Vaccines	See <i>Biologics, including vaccines</i> .
Vitamins	Used for enrichment or fortification. Synthetic vitamins may be used if non-synthetic sources are not commercially available. Vitamins from any source are allowed for medical use.

6. PERMITTED SUBSTANCES LISTS FOR PROCESSING

6.1 **Classification** — Processing substances are classified according to the following uses and applications:

- a. **Non-organic Ingredients (NOI)** are in most cases considered non-agricultural, although some of the fundamental ingredients may have originated from agricultural-based commodities. Non-organic ingredients may be used only when an acceptable alternative, non-synthetic ingredient is commercially unavailable.
 - i. **Food Additives** — See the definition of Food Additive in section 3 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*.
 - ii. **Other Non-organic Ingredients** — These non-organic ingredients are not considered food additives.
- b. **Substances Permitted in Products Whose Contents Are 70% or More, and Less Than 95% Organic Ingredients.**

6.2 **Other Categories of Substances** — Other categories of substances are classified according to the following uses and applications:

- a. **Processing Aids** are substances or ingredients that are added to a product for a technological effect during processing. They are not present in the finished product or are present at insignificant or non-functional levels.
- b. **Pest Control Substances** are used to disinfect or prevent infestation of stored commodities, prevent post-harvest decay, and control losses from insects, diseases, rodents and other organisms.

Substance Name(s)	Origin and Usage
Acids	Including a) alginic, b) citric — produced by microbial fermentation of carbohydrate substances, and c) lactic.
Agar	Water, alcohol, acid and base extracts that are permitted by this standard only.
Alginates (alginic acid, sodium alginate, potassium alginate)	
Ammonium bicarbonate	For use as a leavening agent only.
Ammonium carbonate	For use as a leavening agent only.
Arabic gum	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.
Argon	
Ascorbic acid, non-synthetic	
Ascorbic acid, synthetic	Synthetic form is allowed in fruits and vegetables only if the natural form is not commercially available.
Calcium carbonate	Prohibited as a colouring agent.
Calcium chloride	Milk products, fat products, fruits and vegetables, and soybean products.
Calcium citrate	
Calcium phosphates (monobasic, dibasic, and tribasic forms)	
Calcium sulphate	From mined sources only. Sulphates produced using sulphuric acid are prohibited.
Carbon dioxide	
Carob bean gum (Locust bean gum)	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.
Carrageenan (Irish moss)	Water, alcohol, acid and base extracts that are permitted by this standard only.
Citric acid	From fruit and vegetable products.
Ferrous sulphate	For iron enrichment or fortification of products when recommended or required by regulation. Sulphates produced using sulphuric acid are prohibited.
Gelatine	Shall be from an organic source unless not commercially available. Plant sources are allowed. Animal sources may be used for canned meat or as gelling agent for gummed candy. If derived from cattle, gelatin shall be guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older; and the distal ileum (portion of the small intestine) of cattle of all ages.
Gellan gum	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.
Glycerides (mono and diglycerides)	For use only in drum drying of products. Organisms from genetic engineering are excluded. Documentation is required. Shall be produced from organic sources unless not commercially available.
Glycerine	Shall be produced by hydrolysis of natural (vegetable or animal) fats and oils.

Substance Name(s)	Origin and Usage
Guar gum	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.
Karaya gum	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.
Kelp and kelp products	For use only as a thickener and dietary supplement.
Lactic acid	For fermented vegetable products or in sausage casings.
Lecithin	Shall be organic unless the required form is not commercially available. Bleached form is allowed if processed in accordance with the requirement of par. 1.4.1. j. of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> .
Locust bean gum (Carob bean gum)	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.
Magnesium chloride (nigari)	Derived from seawater, for soybean products.
Magnesium sulphate	From non-synthetic sources only. Sulphates produced using sulphuric acid are prohibited.
Malic acid	
Ozone	
Pectin (high-methoxy)	
Pectin (low-methoxy)	
Potassium acid tartrate ($\text{KC}_4\text{H}_5\text{O}_6$)	Synthetic form is allowed only if the non-synthetic form is not commercially available.
Potassium carbonate	
Potassium chloride	
Potassium citrate	
Potassium metabisulphite	See <i>Sulphurous acid</i> .
Potassium tartrate ($\text{K}_2\text{C}_4\text{H}_4\text{O}_6$, INS 336)	Synthetic form is allowed only if the non-synthetic form is not commercially available.
Silicon dioxide	
Sodium acid pyrophosphate	For use as a leavening agent only.
Sodium bicarbonate (baking soda)	Synthetic form is allowed only if the non-synthetic form is not commercially available.
Sodium carbonate (soda ash)	Synthetic form is allowed only if the non-synthetic form is not commercially available.
Sodium chloride	
Sodium citrate	For sausages and milk products.
Sodium hydroxide (lye or caustic soda)	
Sodium phosphates	For use in dairy products only.

Substance Name(s)	Origin and Usage
Sulphurous acid	For use as a preservative only in alcoholic beverages made from grapes or other fruit; minimum use of SO ₂ is recommended. The maximum allowable level of SO ₂ in alcoholic beverages with less than 5% residual sugar is 100 parts per million and 30 parts per million for total sulphites and free sulphites respectively; in alcoholic beverages with 5% or more and less than 10% residual sugar, 150 parts per million and 35 parts per million respectively; and in alcoholic beverages with 10% or more residual sugar, 250 parts per million and 45 parts per million respectively. The use of sulphites from SO ₂ bottled gas, as liquid SO ₂ , or liberated from the ignition of asbestos-free sulphur wicks is acceptable.
Tartaric acid (C ₄ H ₆ O ₆ . INS 334)	For beverages; synthetic form is allowed only if the non-synthetic form is not commercially available.
Tocopherols and mixed natural concentrates	Derived from vegetable oil when rosemary extracts are not a suitable alternative.
Tragacanth gum	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.
Xanthan gum	Water, alcohol, acid and base extracts and precipitants that are permitted by this standard only.

6.4 Non-organic Ingredients Not Classified as Food Additives

Substance Name(s)	Origin and Usage
Colouring, natural	From non-synthetic sources only and shall not be produced using synthetic solvents and carrier systems or any artificial preservative.
Cornstarch	Not from sources from genetic engineering or products derived from genetic engineering, with no added chemosynthetic substance.
Dairy cultures	May not be products of recombinant DNA technology.
Enzymes	Any preparations of enzymes normally used in food processing derived from edible, non-toxic plants, non-pathogenic fungi or non-pathogenic bacteria. Animal enzymes: rennet—animal-derived; catalase—bovine liver; animal lipase; pancreatin; pepsin; and trypsin. Animal-derived enzymes shall be guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of ruminants aged 30 months or older; and the distal ileum (portion of the small intestine) of ruminants of all ages. Shall be from an organic source unless commercially unavailable. Egg white lysozyme.
Flavours	From non-synthetic sources only; shall not be produced using synthetic solvents and carrier systems or any artificial preservative. No propylene glycol carrier or any artificial preservatives, and shall not be hexane extracted.
Micro-organisms, (processing derivatives)	Including any preparations of micro-organisms normally used in product processing, excepting micro-organisms from genetic engineering or enzymes derived from genetic engineering, with no added chemosynthetic substance.
Nitrogen	Food-grade quality only.
Oxygen	
Potassium iodide, natural	Permitted only when legally required.

Substance Name(s)	Origin and Usage
Salt	See also <i>Sodium chloride</i> in par. 6.3. Only substances listed in par. 6.3 or 6.4 may be added to mined or sea salt.
Smoke flavour	See <i>Yeast</i> .
Starch	Chemically unmodified only. From rice and waxy maize. Water, alcohol, acid and base extracts that are permitted by this standard only. Shall not be from genetically engineered sources.
Vitamins and minerals	Minerals (including trace elements), vitamins and similar isolated ingredients shall not be used except where legally required or a dietary or nutritional deficiency can be demonstrated and shall be documented. Vitamins shall not be derived from organisms from genetic engineering.
Waxes	Non-synthetic only: a) carnauba wax and b) wood resin (processing product of resin component).
Yeast	Non-synthetic only: a) autolysate, b) bakers' (may contain lecithin, obtained without the use of bleaches and organic solvents), c) brewers', d) nutritional, and e) smoked. Non-synthetic smoke flavouring process shall be documented. Growth on petrochemical substrate and sulphite waste liquor are prohibited.

6.5 **Substances Permitted in Products Whose Contents Are 70% or More, and Less Than 95% Organic Ingredients**

Substance Name(s)	Origin and Usage
Magnesium carbonate	As an anti-caking agent in non-standardized dry mixes (e.g. seasonings) used in meat products.
Magnesium stearate	
Potassium iodide, synthetic	
Potassium phosphate	

6.6 **Processing Aids**

Substance Name(s)	Origin and Usage
Activated charcoal	Shall be of plant origin. Prohibited for use in the processing of maple syrup.
Alcohol, ethyl (ethanol)	
Argon	
Bentonite	
Calcium carbonate	
Calcium hydroxide (lime)	
Calcium sulphate, (gypsum)	As a carrier for cakes and biscuits, soybean products and bakers' yeast. Sulphates produced using sulphuric acid are prohibited.
Carbon dioxide	
Carrageenan (Irish moss)	Water, alcohol, acid and base extracts that are permitted by this standard only.
Casein	Shall be from organic sources unless commercially unavailable.
Cellulose	As a filtering aid (non-chlorine bleached) and for use in inedible regenerative sausage casings.
Diatomaceous earth	As a food filtering aid or as a clarifying agent only.

Substance Name(s)	Origin and Usage
Enzymes	Any preparations of enzymes normally used in food processing derived from edible, non-toxic plants, non-pathogenic fungi or non-pathogenic bacteria. Animal enzymes: rennet—animal-derived; catalase—bovine liver; animal lipase; pancreatin; pepsin; and trypsin. Animal-derived enzymes shall be guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of ruminants aged 30 months or older; and the distal ileum (portion of the small intestine) of ruminants of all ages. Shall be from an organic source unless commercially unavailable. Egg white lysozyme.
Ethylene	For post-harvest ripening of tropical fruit and degreening of citrus only.
Gelatine	Permitted only if guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older; and the distal ileum (portion of the small intestine) of cattle of all ages. Shall be from an organic source unless commercially unavailable.
Isinglass	As a fining agent (fish-based).
Kaolin	As a clarifying agent.
Lecithin	Shall be organic unless the required form is not commercially available. Bleached form is allowed if processed in accordance with the requirement of par. 1.4.1. j. of CAN/CGSB-32.310, <i>Organic Production Systems — General Principles and Management Standards</i> .
Nitrogen	Food-grade quality only.
Oxygen	
Ozone	
Perlite	For use as a filter aid in food processing only.
Potassium carbonate	
Potassium hydroxide (caustic potash)	For pH adjustment only. Prohibited for use in lye peeling of fruits and vegetables.
Silicon dioxide	
Sodium bicarbonate (baking soda)	Synthetic form is allowed only if the non-synthetic form is not commercially available.
Sodium hydroxide (lye or caustic soda)	Prohibited for use in lye peeling of fruits and vegetables.
Talc	As a filtering agent.
Tannic acid	Tannins and tannic extracts using water, alcohol, acid and base extracts that are permitted by this standard only. Shall be from an organic source unless not commercially available. Only permitted as a filtration aid for wines.
Tartaric acid (C ₄ H ₆ O ₆ . INS 334)	For beverages; from non-synthetic sources.
Vegetable oil	Obtained without the use of synthetic solvents. May be used as a spray-on greasing agent only.
Waxes	Non-synthetic only: a) carnauba wax and b) wood resin (processing product of resin component).

Pest Control Substances

Substance Name(s)	Origin and Usage
Ammonium carbonate	As an attractant in insect traps.
Boric acid	May be used for structural pest control (e.g. ants). No direct contact with organic food or crops is allowed.
Carbon dioxide	
Cholecalciferol (vitamin D ₃)	Not allowed in organic food processing and food storage facilities.
Diatomaceous earth	
Neem oil	
Pyrethrins	Without piperonyl butoxide as a carrier. No direct contact with organic food is allowed.
Soaps, ammonium	As a large animal repellent; no contact with soil or edible portion of crop is allowed.

7. PERMITTED SUBSTANCES LISTS FOR CLEANERS, DISINFECTANTS AND SANITIZERS

7.1 **Classification** — Cleaners, disinfectants and sanitizers are used to remove dirt, filth and foreign matter from products and product-handling operations. These substances are also used to control micro-organisms that may contaminate products. They are classified as follows:

- a. Food-grade cleaners, disinfectants and sanitizers that are allowed without a mandatory removal event.
- b. Cleaners, disinfectants and sanitizers allowed on food contact surfaces, equipment and in facilities provided that substances are removed from food contact surfaces prior to organic production.

7.2 **Section 7 does not apply to maple syrup production** — The operator shall meet the specific requirements for the different stages of production as described in par. 7.2 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*.

7.3 Food-Grade Cleaners, Disinfectants and Sanitizers That Are Allowed Without a Mandatory Removal Event

Substance Name(s)	Origin and Usage
Acetic acid	Non-synthetic and synthetic sources may be used on equipment. Non-synthetic sources only may be used on food and plants.
Alcohol, ethyl (ethanol)	Non-synthetic and synthetic sources may be used on equipment.
Alcohol, isopropyl	Non-synthetic and synthetic sources may be used on equipment.
Ascorbic acid	Non-synthetic sources may be used on equipment.
Citric acid	Non-synthetic and synthetic sources may be used.
Hydrogen peroxide	
Peracetic (peroxyacetic) acid	For use in wash or rinse water for food or plants or on food contact surfaces.
Potassium bicarbonate	On equipment.
Sodium bicarbonate (baking soda)	Only non-synthetic sources may be used on food or food contact surfaces without a mandatory removal event.
Sodium carbonate (soda ash)	Only non-synthetic sources may be used on food or food contact surfaces without a mandatory removal event.

Substance Name(s)	Origin and Usage
Sodium hydroxide (lye or caustic soda)	
Vinegar	Organic or non-organic sources.

7.4

Cleaners, Disinfectants and Sanitizers Allowed on Food Contact Surfaces including Equipment Provided That Substances Are Removed From Food Contact Surfaces Prior to Organic Production

Substance Name(s)	Origin and Usage
Bleach	<p>a. Calcium hypochlorite;</p> <p>b. Chlorine dioxide;</p> <p>c. Sodium hypochlorite;</p> <p>d. Ozone; and</p> <p>e. Hydrogen peroxide.</p> <p>Not to exceed 10% solution by volume. Free chlorine levels for wash water in direct contact with crops or food, and in flush water from cleaning irrigation systems, that is applied to crops or fields, shall not exceed the maximum limits under the applicable regulations for safe drinking water.</p>
Chlorine	See <i>Bleach</i> .
Detergents	Biodegradable only (whose biodegraded components are not more harmful than the original components). On equipment.
Iodine	On equipment. Non-elemental only and not to exceed 5% solution by volume (e.g. iodophors).
Lime	
Phosphoric acid	On equipment in the dairy industry only.
Potassium hydroxide (caustic potash)	
Potassium permanganate	Not to exceed 1% solution by volume.
Soap-based algicide (demossers)	On equipment.
Soaps	Soaps consisting of fatty acids derived from animal or vegetable oils are allowed.
Sodium bicarbonate (baking soda)	
Sodium borate	
Sodium carbonate (soda ash)	
Surfactants	See <i>Detergents, Soaps</i> .
Wetting agents	Natural wetting agents, including saponins and microbial wetting agents, are allowed. See also <i>Detergents, Soaps</i> .

8. NOTES (Informative)

8.1 Related Publications

8.1.1 Canadian Food Inspection Agency (CFIA)

Feeds Act (R.S.C., 1985, c. F-9)

Feeds Regulations, 1983 (SOR/83-593).

8.1.2 Health Canada

Food and Drugs Act (R.S.C., 1985, c. F-27)

Food and Drug Regulations (C.R.C., c. 870)

Pest Control Products Act (S.C. 2002, c. 28)

Pest Control Products Regulations (SOR/2006-124).

8.2 Sources of Referenced Publications

The following addresses were valid at the date of publication.

8.2.1 The publication referred to in par. 2.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone 819-956-0425 or 1-800-665-2472. Fax 819-956-5740. E-mail ncr.cgsb-ongc@tpsgc-pwgsc.gc.ca. Web site www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html.

8.2.2 The publication referred to in par. 2.1.2 may be viewed at the Canadian Council of Ministers of the Environment Web site at ccme.ca.

8.2.3 The publication referred to in par. 2.1.3 may be viewed at the Quebec Ministère du Développement durable, de l'Environnement et des Parcs Web site at www.mddep.gouv.qc.ca/matieres/mat_res-en/fertilisantes/critere/index.htm.

8.2.4 The publication referred to in par. 2.1.4 may be viewed at the Pest Management Regulatory Agency Web site at www.pmra-arla.gc.ca/english/pubs/reg-e.html.

8.3 Source of Related Publications

The following address was valid at the date of publication.

8.3.1 The publications referred to in par. 8.1.1 and 8.1.2 may be viewed at the Department of Justice Canada Web site at canada.justice.gc.ca.

(This appendix does not form a mandatory part of the standard.)

ORGANIC PRODUCTION SYSTEMS REVIEW RECORD FOR GENERIC SUBSTANCES ADDED OR AMENDED

Section 10 of CAN/CGSB-32.310, *Organic Production Systems — General Principles and Management Standards*

SECTION A — COMMENT FORM

A.1 Substance: _____
Common Name(s) Chemical Abstracts Service (CAS) #

A.2 Fill out a., b. or c. by referring to Comment Form:

a. FOR A NEW SUBSTANCE:

Proposed for addition into Table (paragraph number): _____

_____ Permitted with no restrictions **OR**

_____ Permitted with limitations on origin/mode of production/usage as follows: _____

Proposed organic usage: _____

b. FOR ADDITION OF AN EXISTING SUBSTANCE INTO A DIFFERENT TABLE:

The substance already appears in Table (paragraph number): _____

Comment requests its addition into Table (paragraph number): _____

Proposed organic usage: _____

c. FOR CHANGES TO ANNOTATIONS OF AN EXISTING SUBSTANCE:

The substance appears in Table (paragraph number): _____

Comment requests changes to annotation: _____

Rationale for change to annotation: _____

SECTION B — SUBSTANCE SPECIFICS

B.1 Substance Description: _____

B.2 Known Alternatives and Relative Merits: _____

B.3 Canadian Regulatory Status: Unregulated ☐ Regulated ☐ Agency(ies) _____

B.4 Compliance Review

B.4.1 Would use of the substance be consistent with the General Principles of Organic Production as identified in CAN/CGSB-32.310-2006, Amended June 2011, par. 10.2.1 a.? If NO, elaborate on any inconsistencies.

☐ Yes ☐ No
Comment: _____

B.4.2 Would use of the substance be consistent with the prohibitions set out in CAN/CGSB-32.310-2006, Amended June 2011, par. 1.4.1? If NO, elaborate on any inconsistencies.

☐ Yes ☐ No
Comment: _____

B.4.3 Is the substance found in nature?

☐ Yes ☐ No
If Yes, has it undergone ONLY the following processes during production:
a. Mechanical/physical (e.g. extraction, precipitation)
b. Enzymatic
c. Microbial (e.g. fermentation)?

☐ Yes ☐ No
If NO, is the substance produced by chemical processes or processes that chemically alter the substance?

☐ Yes ☐ No
If Yes, describe the process(es): _____

SECTION C — CROPS

- C.1** Is the substance necessary for obtaining or maintaining soil fertility, for fulfilling specific requirements of crops or for specific soil conditioning and rotational purposes that cannot be satisfied by the requirements and practices of this standard (CAN/CGSB-32.310-2006, Amended June 2011, par. 10.3.1)?

☐ Yes ☐ No

Comment: _____

- C.2** Is the substance necessary for management of diseases, insects, weeds and other pests of plants that cannot be managed by any other biological, physical or plant breeding alternative or effective management practice (CAN/CGSB-32.310-2006, Amended June 2011, par. 10.3.2)?

☐ Yes ☐ No

Comment: _____

- C.3** Is the substance of plant and animal origin and derived from crops and livestock produced in accordance with this standard (CAN/CGSB-32.310-2006, Amended June 2011, par. 10.4.1)?

☐ Yes ☐ No

If NO, is a non-synthetic form of this substance available in sufficient quality or quantity?

☐ Yes ☐ No

- C.4** Is the substance produced by chemical processes or processes that chemically alter the substance?

☐ Yes ☐ No

SECTION D — LIVESTOCK

- D.1** If the substance is proposed for par. 5.2, Feed, Feed Additives and Feed Supplements, is the substance necessary to correct documented essential nutrient deficiencies in the forage or feed ration given that other biological, cultural, or physical treatments are not available (CAN/CGSB-32.310-2006, Amended June 2011, par. 10.3.3.1)?

☐ Yes ☐ No

Comment: _____

- D.2** If the substance is proposed for par. 5.2, Feed, Feed Additives and Feed Supplements, is the substance necessary for ensuring and preserving product quality, given that other biological, cultural or physical treatments are not available (CAN/CGSB-32.310- 2006, Amended June 2011, par. 10.3.3.1)?

☐ Yes ☐ No

Comment: _____

D.3 If the substance is proposed for par. 5.2, Feed, Feed Additives and Feed Supplements, is the substance obtained from organic sources or from sources occurring in nature, such as marine products or mineral origin (CAN/CGSB-32.310-2006, Amended June 2011, par. 10.4.2.1)?

☐ Yes ☐ No

Comment: _____

If NO, is a non-synthetic form of this substance available in sufficient quality or quantity?

☐ Yes ☐ No

Comment: _____

D.4 If the substance is proposed for par. 5.3, Health Care Products and Production Aids, is the substance necessary for livestock health (CAN/CGSB-32.310-2006, Amended June 2011, par. 10.3.3.2)?

☐ Yes ☐ No

Are other organic treatments not available?

☐ Yes ☐ No

Comment: _____

SECTION E — PROCESSING

E.1 Is the substance

a. necessary to correct documented essential nutrient deficiencies of the product (i.e. vitamins and minerals) OR when required by regulations?

☐ Yes ☐ No OR

b. essential for ensuring the safety of the product?

☐ Yes ☐ No OR

c. used only when it is not feasible/practical to produce or store such products without having recourse to such ingredients and processing aids?

☐ Yes ☐ No OR

d. necessary to achieve a technological effect during processing (e.g. filtration) or an organoleptic effect in the final product (e.g. colouring and flavouring) while respecting the principle in CAN/CGSB-32.310-2006, Amended June 2011, par. 10.2.1 a. vi.?

☐ Yes ☐ No

Comment: _____

E.2 Are organic sources available in sufficient quality or quantity?

☐ Yes ☐ No

If NO, are other non-synthetic sources of these substances available in sufficient quality or quantity?

☐ Yes ☐ No

Comment: _____

E.3 What is the impact of the substances use and potential misuse on

- a. human health through both food and non-food exposure, including acute and chronic toxicity, allergenicity and metabolites;
- b. product quality, including nutrition, flavour, taste, appearance and storage, when applicable;
- c. consumer perception of the nature, substance and quality of a food product?

Comment: _____

SECTION F — CLEANING AND SANITATION

F.1 In which area of organic production would this substance be proposed for use?

☐ Crops ☐ Livestock ☐ Processing

F.2 Is the substance necessary and appropriate for the intended use?

☐ Yes ☐ No

Comment: _____

F.3 Is a non-synthetic form of this substance available in sufficient quality or quantity?

☐ Yes ☐ No

Comment: _____

SECTION G — IMPACTS

- G.1** What is the impact of the substance's manufacture and disposal after use on the environment including impacts on ecology, surface and ground water and soil and air quality including substance persistence, degradation and concentration effects?

- G.2** What is the impact on equivalency and harmonization of this standard with standards and regulations of other jurisdictions?

SECTION H — REFERENCES USED

Please cite all references used in the review of this substance: _____

SECTION I — COMPLIANCE SUMMARY

- I.1** Permitted Substances Lists (PSL) sub-committee recommendations regarding substance request:

☐ Acceptance ☐ Rejection

- I.2** Rationale: _____

- I.3** Substance Name as it should appear in CAN/CGSB-32.311: _____

- I.4** Table (paragraph number) in which it should appear in CAN/CGSB-32.311: _____

- I.5** Annotation (if applicable): _____

- I.6** If accepted on an exception basis, latest date by which the substance must be reviewed again: _____

SECTION J — REVIEWER ATTESTATION

Members of the working group reviewing this substance:

1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____
10.	_____	_____	_____	_____
	Name	Credentials	Signature	Date

This document provides a summary of the discussions undertaken by the Working Group on this substance during the period (DD/MM/YY) from _____ to _____.