

## N: PERMITTED SUBSTANCES LISTS (PSL) FOR CLEANERS, DISINFECTANTS AND SANITIZERS (311: 7) & FACILITY MANAGEMENT SUBSTANCES (311: 8)

### CANADIAN ORGANIC STANDARDS PSL\*

### COG'S GUIDE TO THE STANDARDS

## 7 PERMITTED SUBSTANCES LISTS FOR CLEANERS, DISINFECTANTS AND SANITIZERS

### 7.1 Classification

7.1.1 “The cleaners, disinfectants and sanitizers listed below are used to remove dirt, filth and foreign matter from organic products and organic product contact surfaces. These substances are also used to control micro-organisms that may contaminate products. The use of these substances may require a removal event, as defined in clause 3 of CAN/CGSB-32.310.”

7.1.2 “They are classified as follows:

- a) food-grade cleaners, disinfectants and sanitizers permitted without a mandatory removal event;
- b) cleaners, disinfectants and sanitizers permitted on organic product contact surfaces, for which a removal event is mandatory prior to an organic production load or run.”

7.1.3 “All non-organic ingredients listed on Safety Data Sheets (SDS) and active ingredients listed on the label of formulated cleaners, sanitizers and disinfectants shall be listed

7.1.1 Table 7.3 applies to organic products, and Tables 7.3 and 7.4 apply to product contact surfaces. For cleaning other surfaces (such as floors and windows), these listed substances are preferred but are not required to be used.

If substances listed in Tables 7.3 and 7.4 are not sufficient for the operator’s needs, verify that the requirements in CAN/CGSB-32.310 Clause 8.2.3 have been followed.

See the guidance for 7.1.2 for details about removal events.

7.1.2 “Without a mandatory removal event” means that an operator is not required to wash the substance off after its use. The substance is allowed to dry on the surface.

“Mandatory removal event” generally entails rinsing with potable water or purging with organic product after using these cleaning, disinfecting, or sanitizing products. Air drying is another acceptable mandatory removal event if applicable. Operators are expected to be able to demonstrate that the substance used was in fact removed from the product contact surface prior to an organic production run. In some cases, this means that operators will be expected to use a testing methodology to document its removal (such as a residue test strip).

7.1.3 To assess if the ingredients of a cleaning, sanitizing or disinfecting product are compliant (i.e., permitted):

\*Organic production systems: permitted substances lists. CAN/CGSB-32.311-2020. Canadian General Standards Board. Dec. 2020. [publications.gc.ca/site/eng/9.854645/publication.html](http://publications.gc.ca/site/eng/9.854645/publication.html) 1

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in Tables 7.3 or 7.4. Other non-organic ingredients used without a removal event shall be limited to substances listed in Table 7.3; water; compounds used to treat drinking water; and product stabilisers, such as HEDP (1-hydroxyethane 1,1-diphosphonic acid) or dipicolinic acid, whose function is to prevent the chemical degradation of substances listed in Table 7.3.

“7.4-compliant products may contain non-active ingredients, including but not limited to dyes, fragrances, and chemical agents used to prevent physical separation of foams or emulsions. Clause 7 does not apply to maple syrup production. The operator shall meet the specific requirements for the different stages of production as described in 7.2 of CAN/CGSB 32.310.”

- If used directly on organic food, feed or product contact surfaces without a removal event, compare all non-organic ingredients listed on the product's SDS including formulants and the active ingredients listed on the label to make sure they are either (i) on PSL Table 7.3, (ii) are chemicals used to treat drinking water, or (iii) serve as product stabilizers.

- If used on organic food-contact surfaces followed by a removal event, verify that all ingredients (including formulants if listed on the SDS) are listed in PSL Table 7.3 or 7.4. If they are not listed in PSL Table 7.3 or 7.4, the criteria described in 8.2.3 of CAN/CGSB-32.310 must be met in order for that product to be used in organic production.

In organic production and processing, genetically engineered (GE) organisms are avoided as much as possible. However, organic operators do not have to check the GE status of any biological or fermented components contained in cleaners, disinfectants or sanitizers as long as the substances contained in these products are listed in Table 7.3 or 7.4.

7.2 Maple producers should refer only to CAN/CGSB-32.310 Clause 7.2 for cleaning requirements.

Two tables follow:

Table 7.3 — Food-Grade Cleaners, Disinfectants And Sanitizers Permitted Without A Mandatory Removal Event

Table 7.4 — Cleaners, Disinfectants And Sanitizers Permitted On Organic Product Contact Surfaces For Which A Removal Event Is Mandatory

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**TABLE 7.3 – FOOD-GRADE CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED WITHOUT A MANDATORY REMOVAL EVENT**

SUBSTANCE NAME(S)	TABLE 7.3 – FOOD-GRADE CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED WITHOUT A MANDATORY REMOVAL EVENT - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Acetic acid</b>	“May be used on organic product contact surfaces. May be used on organic products if produced by microbial fermentation of natural carbohydrate sources (sugars, wood, etc.). Example: apple cider vinegar. May be filtered or unfiltered.”	<p>Acetic acid (the main component of vinegar) is produced industrially using two different methods; 75% by carbonylation of methanol, the rest by bacterial fermentation.</p> <p>Commonly used as an antimicrobial agent, acetic acid can be used to rinse or clean organic produce if the acetic acid is made from a fermented biological source and a removal event is not required. The carbonylated form, when carbon monoxide is injected into the solution during the manufacturing process, may not be used on organic product but may be used on product contact surfaces. A removal event is not required.</p> <p>Organic operators do not have to check the GE status of any biological or fermented components contained in any cleaners, disinfectants, sanitizers as long as the substances contained in these products are listed in Table 7.3 or 7.4.</p>
<b>Alcohol, ethyl (ethanol)</b>	“May be used on organic product contact surfaces.”	This water-soluble chemical compound is effective against fungi, bacteria (in their growth phase but not spores), Mycobacterium, and certain viruses, including Norovirus. It is most effective at a concentration of 60%-90% in water. Activity drops sharply when diluted below a 50% concentration.
<b>Alcohol, isopropyl</b>	“May be used on organic product contact surfaces.”	Also known as rubbing alcohol, this is an effective disinfectant against bacteria, viruses and fungi but not effective against spores. This is most effective at 60%-90% in water.

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		Activity drops sharply when diluted below 50% concentration.
<b>Alcohol, organic sources</b>		Effective against fungi, vegetative bacteria (i.e., bacteria in their growing states), Mycobacteria and some viruses, including norovirus (but not effective against spores). Most effective at 60%-90% in water. Activity drops sharply when diluted below 50% concentration.
<b>Ascorbic acid (vitamin C)</b>		<p>Most commercial sources are extracted from a two-step bacterial fermentation of a carbohydrate substrate, such as corn starch, corn sugar or rice. Other sources of ascorbic acid are chemically derived from ascorbyl palmitate, calcium ascorbate, magnesium ascorbate, niacinamide ascorbate/nicotinamide ascorbate, potassium ascorbate, sodium ascorbate.</p> <p>Fermented and chemically derived sources may be used as cleaners, disinfectants or sanitizers. Organic operators do not have to check the GE status of biological or fermented components contained in any cleaners, disinfectants, sanitizers if the substances in these products are listed in Table 7.3 or 7.4.</p> <p>Ascorbates (the mineral salts of ascorbic acid) are not the same as ascorbic acid and are not permitted.</p>
<b>Carbon dioxide (CO<sub>2</sub>)</b>		CO <sub>2</sub> is part of the new age cleaning toolkit. It is used to clean objects from large equipment to delicate hard drives and optics. Various phases, including solid dry ice pellets, liquid CO <sub>2</sub> , CO <sub>2</sub> snow (dry-liquid hybrid) and supercritical CO <sub>2</sub> , may be used to clean organic products and contact surfaces.

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SUBSTANCE NAME(S)	TABLE 7.3 – FOOD-GRADE CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED WITHOUT A MANDATORY REMOVAL EVENT - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Chlorine compounds</b>	<p>“The following chlorine compounds are permitted:</p> <ul style="list-style-type: none"> <li>a) calcium hypochlorite;</li> <li>b) chlorine dioxide;</li> <li>c) hypochlorous acid generated via electrolyzed water;</li> <li>d) sodium hypochlorite.</li> </ul> <p>Shall not exceed maximum levels for safe drinking water.</p> <p>Chlorine compounds may be used:</p> <ul style="list-style-type: none"> <li>a) for wash water in direct contact with crops or food;</li> <li>b) in flush water from cleaning irrigation systems, equipment, storage or transport units—application to crops or fields is permitted.” </li></ul>	<p>Used to kill bacteria and disinfect. Used to treat pasteurizer cooling water, washing fruit, vegetables and poultry carcasses, and to disinfect product contact surfaces.</p> <p>Chlorine mixed with calcium is usually in granular or tablet form (calcium hypochlorite) and when mixed with sodium is a liquid bleach (sodium hypochlorite). Hypochlorous acid (HClO) in water releases hypochlorite (ClO<sup>-</sup>). Chlorine may also be available as chlorine dioxide although hypochlorites are the most active of the chlorine compounds.</p> <p>Drinking water guidelines vary by province; typical chlorine levels in Canadian drinking water distribution systems range from 0.04 to 2.0 mg/L. (Note 1 mg/L equals 1 ppm). Operators should consult their provincial regulatory bodies. In the application of this standard, certifying bodies should require a water test of all crop or product wash water that contains chlorine compounds to confirm drinking water levels. Compliance also required for water applied to crops or flush water applied to fields.</p> <p>Electrolyzed water (which may contain hypochlorous acid as a byproduct of either electrolysis or from the dissolution of chlorine compounds in water) is permitted.</p>
<b>Citric acid</b>		<p>Common commercial sources are produced industrially in cultures of <i>Aspergillus niger</i>, which are fed on a medium that contains sucrose or glucose. The source of sucrose or glucose is typically corn steep liquor, molasses, corn starch or other</p>

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		<p>inexpensive sugary solutions. Organic operators do not have to check the GE status of any biological or fermented components contained in any cleaners, disinfectants, sanitizers as long as the substances contained in these products are listed in Table 7.3 or 7.4.</p> <p>Used as a component of fruit and vegetable wash products.</p>
<b>Glycerol (glycerine, glycerin)</b>	<p>“Shall be: a) sourced from vegetable oil or animal fat; b) produced using fermentation or by hydrolysis.”</p>	<p>Used as a stabilizer of cleaning products that contain a mixture of water and oils.</p>
<b>Hydrogen peroxide</b>		<p>There are many grades of hydrogen peroxide. Food-grade hydrogen peroxide at 3% concentration is the most common for use as a sanitizing agent. Note that the food-grade label does not mean this product can be ingested. Follow product instructions when handling food-grade hydrogen peroxide—this is a highly reactive product.</p>
<b>Lactic acid</b>		<p>Commonly known as “milk acid,” but most commercial sources are created by bacterial fermentation of a carbohydrate such as cornstarch, potatoes or molasses.</p> <p>Its main function is to adjust pH which can affect microbiological activity, cooking results and textures.</p>
<b>Magnesium sulphate</b>		<p>Contained in many commercial detergents, liquid soaps and rinsing agents to regulate viscosity. Can be used as an inexpensive abrasive scrub.</p>

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Micro-organisms</b>	“Living or dead biological organisms, such as viruses, phages, bacteria, protozoa, fungi, etc.”	The new frontier in cleaning: Much research is being undertaken regarding the use of beneficial microorganisms that can outnumber harmful microorganisms on surfaces and how this may become a new frontier in food safety protocols. The goal is to populate surfaces repeatedly with good living microorganisms and they will eventually outnumber the harmful microorganisms as the harmful ones die off naturally.
<b>Ozone</b>		<p>Ozone is a highly reactive form of oxygen. It is a potent oxidant/disinfectant that quickly decomposes to diatomic oxygen (O<sub>2</sub>) while reacting with organic matter or micro-organisms.</p> <p>Used to purify drinking water, sterilize containers for aseptic packaging, decontaminate fresh produce and preserve food in cold storage. Ozone can also deodorize air and water.</p>
<b>Peracetic (peroxyacetic) acid</b>	<p>“On food and plants: peracetic acid may be used in wash or rinse water.</p> <p>Peracetic acid may also be used on food contact surfaces.”</p>	<p>Peracetic acid is a chemical in the organic peroxide family. It is a good anti-microbial agent due to its high oxidizing potential. Peroxyacetic acid is effective against a broad spectrum of coliforms, bacteria, yeast and moulds. It is effective at temperatures from 5C to 40C and at a pH up to 8.0. It breaks down to acetic acid (vinegar), water, oxygen and carbon dioxide.</p> <p>There are no restrictions on the method of production for peracetic acid itself. Some commercial peracetic acid products are fortified with non-listed substances (e.g., quaternary ammonia). These would be prohibited for use unless they meet the criteria described in 8.2.3 of CAN/CGSB-32.310.</p> <p>Used most commonly in fresh-cut, further processed, and</p>

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		post-harvest fruit and vegetable flume and wash water systems, especially where high levels of organic matter could significantly decrease the effectiveness of chlorine. It is also commonly used in poultry chill tanks and to wash red meat carcasses. Different formulations are designed to be used directly on whole and processed fruit and vegetable surfaces, on food and non-food contact surfaces, and in clean-in-place (CIP) systems. Rinsing is generally not required.
<b>Potassium bicarbonate</b>	“On organic product contact surfaces.”	
<b>Sodium bicarbonate (baking soda)</b>		Made via either the Solvay (using mined limestone) or Trona processes using mined Trona ore. Also known as bicarbonate of soda. Sodium bicarbonate is an effective scouring agent when mixed with water. It helps to lift baked-on cooking residues by interacting with acids in the residues.
<b>Sodium carbonate (soda ash)</b>	“Biological or mined sources. See Table 7.4 Sodium carbonate (soda ash), synthetic.”	<p>Can be extracted from the ash of many plants growing in sodium-rich soils (e.g., plants from the Middle East, kelp from Scotland; seaweed from Spain). Because the ash of sodium-rich plants differs from ash from timber (used to create potash), it is known as “soda ash.”</p> <p>Can cut through grease, especially on non-porous surfaces such as stainless steel, and coated surfaces.</p>

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
Sodium citrate		Used as a buffering agent in the formulation of cleaning products and as a water softener.
Sodium hydroxide (lye or caustic soda)		<p>Made through the electrolysis of an aqueous solution of sodium chloride.</p> <p>Used as an industrial cleaning agent where it is often called “caustic.” It is added to water, heated, and used to clean process equipment, storage tanks, etc. It can dissolve grease, oils, fats and protein-based deposits. Surfactants can be added to the sodium hydroxide solution to stabilize dissolved substances and thus prevent redeposition. A sodium hydroxide soak solution is a powerful degreaser for stainless steel and glass bakeware.</p> <p>Sodium hydroxide can be used in water purification to raise the pH of water supplies. A higher pH makes the water less corrosive to plumbing and reduces the amount of lead, copper and other toxic metals that can dissolve into drinking water.</p> <p>When sodium hydroxide is mixed with a surfactant, it is categorized as a detergent under this standard and a mandatory removal event is required. See Detergent listing in 7.4.</p>
Vinegar		Used as an anti-microbial agent and can be used to rinse or clean organic produce.

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**TABLE 7.4 – CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED ON ORGANIC PRODUCT CONTACT SURFACES FOR WHICH A REMOVAL EVENT IS MANDATORY**

SUBSTANCE NAME(S)	TABLE 7.4 – CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED ON ORGANIC PRODUCT CONTACT SURFACES FOR WHICH A REMOVAL EVENT IS MANDATORY – ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Chlorine compounds</b>	<p>“The following chlorine compounds are permitted up to maximum label rates:</p> <p>a) calcium hypochlorite;</p> <p>b) chlorine dioxide;</p> <p>c) hypochlorous acid generated via electrolyzed water;</p> <p>d) sodium hypochlorite.”</p>	<p>Used to kill bacteria and disinfect. For example, it is used to:</p> <ul style="list-style-type: none"> <li>• Treat pasteurizer cooling water;</li> <li>• Wash fruit, vegetables and poultry carcasses; and</li> <li>• Disinfect product contact surfaces.</li> </ul> <p>Chlorine mixed with calcium is usually in granular or tablet form (calcium hypochlorite) and when mixed with sodium is a liquid bleach (sodium hypochlorite). Hypochlorous acid (HClO) in water releases hypochlorite (ClO<sup>-</sup>). Chlorine may be available as chlorine dioxide although hypochlorites are the most active of the chlorine compounds.</p> <p>Electrolyzed water (which may contain hypochlorous acid as a byproduct of either electrolysis or from the dissolution of chlorine compounds in water) is permitted.</p>
<b>Detergents</b>	<p>“Detergents shall be readily, ultimately or inherently biodegradable per the Organisation for Economic Co-operation and Development (OECD) definitions, or readily eliminated during wastewater treatment such that harm to the environment is minimized.”</p>	<p>Detergents are complex products containing up to 20 or more ingredients. The standard does not require each component to be assessed for compliance. All that is needed is confirmation of the biodegradability status of the product (not of each ingredient), or confirmation that the detergent breakdown products have been neutralized during wastewater treatment.</p> <p>Biodegradability information can be found in the “Ecological Information” contained in Section 12 of a product’s Safety Data Sheet under the subheading “Persistence and degradability.” A typical phrase that demonstrates compliance is “Product is expected to be readily biodegradable as per OECD 301.” The 301 series of OECD</p>

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SUBSTANCE NAME(S)	TABLE 7.4 – CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED ON ORGANIC PRODUCT CONTACT SURFACES FOR WHICH A REMOVAL EVENT IS MANDATORY – ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		<p>tests includes six testing methods used to confirm ready biodegradability in an aerobic aqueous medium.</p> <p>OECD definitions relevant to this substance listing:</p> <p>Inherent biodegradable: A classification of chemicals for which there is unequivocal evidence of biodegradation (primary or ultimate) in any test of biodegradability.</p> <p>Ultimate aerobic biodegradation (mineralisation): The level of degradation achieved when the test compound is totally utilised by micro-organisms resulting in the production of carbon dioxide, water, mineral salts and new microbial cellular constituents (biomass).</p> <p>Readily biodegradable: An arbitrary classification of chemicals which have passed certain specified screening tests for ultimate biodegradability; these tests are so stringent that it is assumed that such compounds will rapidly and completely biodegrade in aquatic environments under aerobic conditions.</p>
<b>Essential oils</b>	“Derived from plant sources using substances in Table 6.3 Extraction solvents and precipitation aids. May contain permitted carriers (see Table 6.3 and 6.4 Carriers).”	Orange oil is an example of an essential oil that is used for cleaning. Some commercial orange oil products do not meet the origin requirement as they are made from petrochemicals. Aromatics are added giving these petrochemical based versions the right fragrance in but these products would not be compliant to the standard.
<b>Iodine</b>	“Shall be non-elemental. Shall not exceed 5% solution by volume (example: iodophors).”	Iodophors (a mixture of iodine and surfactant) have broad-spectrum activity and are effective against a wide range of bacteria, viruses, yeasts, moulds, fungi and protozoans. Although less affected by organic matter and water hardness than chlorine, iodophors have a limited effective temperature range (24C-34C). They are least effective at low temperatures and vaporize at 49C. They are most effective at low pH (2.5-3.5). Iodophors have 2.5 times the oxidizing power of

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SUBSTANCE NAME(S)	TABLE 7.4 – CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED ON ORGANIC PRODUCT CONTACT SURFACES FOR WHICH A REMOVAL EVENT IS MANDATORY – ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		chlorine, so a lower concentration is required (e.g., 25 ppm). Iodophors can stain and discolour equipment, especially plastics. Commonly used for sanitation in the meat industry.
<b>Lime</b>	“All forms of lime, including calcium carbonate, calcium hydroxide and calcium oxide.”	Also known as calcium oxide, burnt lime, or quicklime. All sources are allowed for cleaning purposes as long as there is a mandatory removal event.
<b>Octanoic acid (caprylic acid)</b>		Works as a surfactant, an antimicrobial agent and an emulsifier. When added into hydrogen peroxide products or peracetic products, octanoic acid increases the effectiveness of the product without increasing the product's toxicity to humans or the environment.
<b>Peroxyoctanoic acid (POOA)</b>		Works as a surfactant, an antimicrobial agent and an emulsifier. When added into hydrogen peroxide products or peracetic products, peroxyoctanoic acid increases the biocide potency of that product without increasing the product's toxicity.
<b>Phosphoric acid</b>	“On dairy equipment.”	Acid sanitizer commonly used in the dairy industry.
<b>Potassium carbonate</b>	“Documentation shall demonstrate that effluent discharge was neutralized to minimize negative environmental impact.”	Prepared commercially by the electrolysis of potassium chloride. As potassium carbonate increases the pH of water if not chemically neutralized before discharged it could impact aquatic species.
<b>Potassium hydroxide (caustic potash)</b>		

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SUBSTANCE NAME(S)	TABLE 7.4 – CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED ON ORGANIC PRODUCT CONTACT SURFACES FOR WHICH A REMOVAL EVENT IS MANDATORY – ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Potassium permanganate</b>	“Not to exceed 1% solution by volume.”	This salt is also known as “permanganate of potash.”
<b>Saponin</b>	“Derived from plants such as <i>Yucca schidigera</i> and <i>Quillaja saponaria</i> .”	Plant compounds which are surfactants and produce foam when dissolved in water. The word “saponin” comes from the same root as “soap” (Latin <i>sapo</i> =soap). Like soaps, saponins are large molecules containing a water-loving (hydrophilic) end and a fat-loving (hydrophobic) end. This unique structure and the way saponin molecules align on surfaces lead to saponin’s ability to reduce the surface tension of the water, and create foam.
<b>Soap-based algicide (demossers)</b>		An algacide or algicide is a substance used for killing and preventing the growth of algae. Numerous organic standards are the only documents in the world to refer to this substance as a “demossers.” More properly the substance refers to “moss killer,” which (obviously) is used to kill moss. Any soap-based products are allowed provided they are not fortified with prohibited pesticides in the carrier (the carrier can make up 80% of the product). Operators should check with their supplier to determine if a product is compliant.
<b>Soaps</b>	“Soaps shall consist of fatty acids derived from animal or vegetable oils.”	Soap is composed of sodium (soda ash) or potassium (potash) salts of fatty acids derived by reacting fat (animal or vegetable) with lye in a process known as saponification. The fats are hydrolyzed by the base, yielding glycerol and crude soap. Many cleaning agents today are technically not soaps, but are detergents, which are less expensive and easier to manufacture.
<b>Sodium borate</b>		Also known as borax, sodium tetraborate, or disodium tetraborate.

\*Organic production systems: permitted substances lists. CAN/CGSB-32.311-2020. Canadian General Standards Board. Dec. 2020. [publications.gc.ca/site/eng/9.854645/publication.html](https://publications.gc.ca/site/eng/9.854645/publication.html) 13

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SUBSTANCE NAME(S)	TABLE 7.4 – CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED ON ORGANIC PRODUCT CONTACT SURFACES FOR WHICH A REMOVAL EVENT IS MANDATORY – ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Sodium carbonate (soda ash), synthetic</b>		<p>It is produced in large quantities from salt (sodium chloride) and limestone by the Solvay process.</p> <p>Used as a component of cleaning products due to its disinfectant properties, ability to cut through grease and ability to soften water. Can be found in dishwashing detergents, all-purpose cleaners, sanitizing sprays and bleach. Also used as a neutralizing agent for the absorption of anionic surfactants.</p>
<b>Sodium percarbonate</b>		<p>Sodium percarbonate works in solution as if sodium carbonate and hydrogen peroxide are added separately. It is beneficial because percarbonate releases oxygen at a lower temperature, and is effective as a laundry bleach.</p>
<b>Sodium silicate</b>	“In detergents.”	<p>Used in dishwashing powders for their wetting and emulsifying properties. All silicates have excellent buffering action against acidic compounds. Silicates can inhibit the corrosion of stainless steel and aluminum by synthetic detergents and complex phosphates.</p>
<b>Surfactants</b>	“Surfactants either stand alone or when formulated with detergents shall be readily, ultimately or inherently biodegradable per the Organisation for Economic Co-operation and Development (OECD) definitions, or readily eliminated during wastewater treatment such that harm to the environment is minimized.”	<p>Surfactants or “SURface ACTive Agents” are compounds that lower the surface tension between two liquids. They can act as detergents, wetting agents, emulsifiers, foaming agents or dispersants. There are negatively charged (anionic), no charge (nonionic), and positively charged (cationic) surfactants. Block copolymer surfactants and alkyl polyglucoside surfactants are nonionic.</p> <p>Most often surfactants are ingredients contained in purchased products especially detergents. If a soap product contains a</p>

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SUBSTANCE NAME(S)	TABLE 7.4 – CLEANERS, DISINFECTANTS AND SANITIZERS PERMITTED ON ORGANIC PRODUCT CONTACT SURFACES FOR WHICH A REMOVAL EVENT IS MANDATORY – ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		<p>surfactant, the product is considered a detergent (See Detergents).</p> <p>Similar to detergents, if surfactants are used on their own, confirmation is needed that the surfactant is biodegradable or that the surfactant is neutralized during wastewater treatment. When contained in a compound product, such as a detergent, documentation for the detergent should be used to confirm the biodegradability of the entire product including the surfactant.</p> <p>Biodegradability information can be found in the “Ecological Information” contained in Section 12 of a product’s Safety Data Sheet under the subheading “Persistence and degradability.” A typical phrase that demonstrates compliance is “Product is expected to be readily biodegradable as per OECD 301.” The 301 series of OECD tests includes six testing methods used to confirm ready biodegradability in an aerobic aqueous medium.</p>
<b>Wetting agents</b>	“Substances listed in Table 4.2 or 7.3, including saponins and microbial wetting agents.”	Wetting agents include not only surfactants that lower the surface tension between two liquids, but also compounds that lower the surface tension between liquids and solids. All surfactants are wetting agents; but not all wetting agents are surfactants.

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## 8 FACILITY MANAGEMENT SUBSTANCES

### 8 Facility management substances

#### 8.1 Classification

8.1.1 “Facility management substances are classified according to the following uses and applications:

- a) Substances listed in Table 8.2 are pesticides (See Pesticides definition in clause 3 of CAN/CGSB-32.310) that may be used in and around facilities, as annotated and as specified in 8.3.2 of CAN/CGSB-32.310. These substances may also be used in traps, lures and as repellents, unless indicated otherwise within substance annotations.
- b) Substances listed in Table 8.3 may be used in facilities as annotated, to accomplish a physiological effect post-harvest.”\*

**TABLE 8.2 – FACILITY PEST MANAGEMENT SUBSTANCES**

SUBSTANCE NAME(S)	TABLE 8.2 – FACILITY PEST MANAGEMENT SUBSTANCES - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Ammonium carbonate</b>	“As an attractant in insect traps.”	Also known as smelling salts and can be used as a lure in insect traps.
<b>Baits for bait stations</b>		<p>A bait station or bait box is a rodent trap containing bait, often a substance that will kill the rodent. Bait stations are not often used in the interior of a food handling or storage facility because this does not comply with most food-safety protocols. However, bait stations are commonly used outside of these buildings to prevent rodent intrusions into facilities.</p> <p>All forms of baits may be used in exterior bait stations at processing facilities located in industrial districts. Also, all forms of bait may be used in the exteriors of facilities located on organic crop or livestock operations as long as there is no risk of contamination of organic land, crops or livestock. In these circumstances, it is best to use bait stations that double as traps</p>

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		<p>and are inescapable. On-farm facilities include grain bins, hay lofts, poultry barns, cold and dry storage, etc.</p> <p>Bait stations could become necessary on the interior of a facility but only under extreme circumstances (see 8.3.3 of 32.310). It makes sense to use inescapable traps to minimize the risk to organic products and contact surfaces.</p>
<b>Boric acid</b>	<p>“May be used for structural pest control (example: for ants). Direct contact with organic products is prohibited.”</p>	<p>Boric acid is produced mainly from borate minerals by the reaction with sulphuric acid.</p> <p>Used as an insecticide for control of cockroaches, termites, fire ants, fleas, silverfish and many other insects. It acts as a stomach poison affecting insect metabolism, and the dry powder is abrasive to insect exoskeletons.</p>
<b>Carbon dioxide (CO<sub>2</sub>)</b>	<p>“For controlled atmosphere storage and for storage pest control.”</p>	<p>An effective fumigant used to kill pests in sealed containers storing vegetables, grain, fruit, or feed; it is not harmful to humans or livestock that later consume them. The concentration of CO<sub>2</sub> required and the length of time the product must be exposed in a sealed container will depend upon various factors including the type of product and pest.”</p>
<b>Cholecalciferol (vitamin D<sub>3</sub>)</b>	<p>“Prohibited inside organic food processing and food storage facilities.”</p>	<p>Cholecalciferol is a form of vitamin D, also called vitamin D<sub>3</sub>, that can be used as a rodenticide. When rodents eat it, calcium and phosphate concentrate in their bodies and this causes their blood to coagulate.</p> <p>It is prohibited to use this within food and food storage facilities. This may seem in opposition to the broad allowance in the <i>Bait stations</i> listing in this table. But once vitamin D<sub>3</sub> is consumed, rodents seek water; therefore its use can lead to contamination.</p>

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<b>Diatomaceous earth</b>	“Direct contact with organic products is permitted.”	<p>Diatomaceous earth (DE) is a powder made from fossilized hard-shelled algae called diatoms. When in contact with an insect that has an exoskeleton (such as an ant), the sharp edges of DE cut into insect’s body causing it to die of dehydration. Diatomaceous earth is most useful in dry situations, for example, puffing it into crevices where cockroaches have been seen.</p> <p>If treating a crop in storage such as grain in a bin, be sure the DE product is PMRA registered for that use.</p>
<b>Formulants</b>	<p>“May only be used with substances listed in Table 8.2.</p> <p>Only formulants classified as List 4A or 4B by the Pest Management Regulatory Agency (PMRA) or are non-synthetic may be used with substances in Table 8.2.</p> <p>Formulants classified as List 3 by PMRA may be used with passive pheromone dispensers.</p> <p>Formulants classified as List 4A, 4B or 3 by PMRA are not subject to 1.4 or 1.5 of CAN/CGSB-32.310.</p> <p>Formulants classified as List 1 or 2 by PMRA are prohibited.”</p>	<p>Most pesticides contain formulants of some type. Review each formulant against the following list to determine if the pesticide product is permitted for use in a facility or in contact with harvested product in the facility:</p> <p>Non-synthetic formulants are permitted in pesticide products;</p> <p>PMRA List 1- or List 2-listed formulants are prohibited, therefore pesticide products that contain them are prohibited;</p> <p>PMRA List 3-listed formulants are permitted ONLY in passive pheromone dispensers;</p> <p>PMRA List 4A- and 4B-listed formulants are permitted in pesticide products.</p> <p>Any formulants in a product which is permitted as noted above are not subject to the prohibitions listed in 1.4 and 1.5 of CAN/CGSB-32.310.</p>
<b>Neem oil</b>		<p>Neem oil and the active ingredient Azadirachtin are extracted from the fruit and nuts of the neem tree. They are non-selective pesticides and as of 2020, no neem products are registered for agricultural pest control in Canada by the PMRA. Neem oil is listed in the PSL in order to facilitate acceptance of foreign products from origins where it is permitted for pest control.</p>

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<b>Pheromones and other semiochemicals</b>	“For pest control. Use in pheromone traps or passive dispensers. “	<p>A pheromone trap uses pheromones to lure insects. Sex pheromones and aggregating pheromones are the most common types of pheromones used. Usually a pheromone-impregnated lure is encased in a conventional trap such as a Delta trap, water-pan trap or funnel trap. Killing agents are sometimes present in the traps.</p> <p>Pheromones are triggers between individuals of the same species, Semiochemicals are the broader category which refers to substances released from one organism that affect another organism, of either the same or an unrelated species.</p>
<b>Pyrethrins</b>	“Without piperonyl butoxide. Direct contact with organic products is prohibited.”	<p>A class of organic compounds normally derived from <i>Chrysanthemum cinerariifolium</i>, which have potent insecticidal activity by targeting the nervous systems of insects.</p> <p>This plant extract is pyrethrum, which contains the active ingredient pyrethrin. Pyrethrin can be made synthetically by industrial methods; this are known as pyrethroids and are not permitted under the standard.</p>
<b>Repellents</b>	“Shall be derived from a biological source, such as sterilized blood meal, rotten eggs, hair or predator scents. May contain other biological compounds and PMRA 4a- or 4b-listed formulants.”	As a deterrent for large animals such as deer, rabbits, voles, elk chipmunks, etc.
<b>Soaps, ammonium</b>	“As a large animal repellent. Direct contact with organic products is prohibited.”	A product from reaction of a fatty acid with ammonium hydroxide.

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**TABLE 8.3 – POST-HARVEST SUBSTANCES**

SUBSTANCE NAME(S)	TABLE 8.3 – POST-HARVEST SUBSTANCES - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
<b>Carbon dioxide (CO<sub>2</sub>)</b>	“For controlled atmosphere storage.”	Used in combination with other gases such as oxygen and nitrogen to modify the gaseous composition of the atmosphere in which food or feed products are stored.
<b>Clove oil</b>	“As a sprout inhibitor.”	Distilled directly from the evergreen plant <i>Syzygium aromaticum</i> . The plant is native to Indonesia but is now grown in several other countries including Madagascar and Brazil. The active ingredient of clove oil is eugenol and other eugenol-based components in the distillate product. Due to the chemistry and volatility of clove oil, it can be applied with a thermal applicator and distributed throughout the storage facility.
<b>Ethylene</b>	“For post-harvest ripening of tropical fruit and degreening of citrus and to control sprouting of potatoes post-harvest in holding bins.”	Produced by heating either natural gas, especially its ethane and propane components, or petroleum to 800-900C (1,470-1,650F). Ethylene is then separated from the resulting mixture by repeated compression and distillation. Used to control the conditions of fruit or vegetables in storage (such as bananas) in order to manage the timing of when it will be ready for retail sale.
<b>Formulants</b>	“Formulants may only be used with substances listed in Table 8.3. Only formulants classified as List 4A or 4B by the Pest Management Regulatory Agency (PMRA) or	See entry in Table 8.2.

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	<p>are non-synthetic may be used with substances in Table 8.3.</p> <p>Formulants classified as List 3 by PMRA may be used with passive pheromone dispensers.</p> <p>Formulants classified as List 4A, 4B or 3 by PMRA are not subject to 1.4 or 1.5 of CAN/CGSB-32.310.</p> <p>Formulants classified as List 1 or 2 by PMRA are prohibited.”</p>	
<b>Nitrogen</b>	“For controlled atmosphere storage.”	Used in combination with other gases, such as carbon dioxide and oxygen, to modify the gaseous composition of the atmosphere in which food or feed products are stored.
<b>Oxygen</b>		<p>Oxygen is separated from atmospheric air.</p> <p>Used in combination with other gases in controlled atmosphere storage.</p>

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