

M: PERMITTED SUBSTANCES LISTS (PSL) FOR PREPARATION (311 CLAUSE 6)

CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
<p>6 PSL FOR PREPARATION</p> <p>6.1 Classification</p> <p>6.1.1 “Processing substances are classified according to the following uses and applications:</p> <ul style="list-style-type: none"> a) Food additives (see definition in clause 3 of CAN/CGSB-32.310); b) Other ingredients not considered to be food additives; c) Processing aids (see definition in clause 3 of CAN/CGSB-32.310).” <p>6.2 Restrictions</p> <p>6.2.1 “Substances listed in Tables 6.3, 6.4 and 6.5 shall comply with prohibitions in 1.4 and 1.5 of CAN/CGSB-32.310. The following additional requirements apply to substances produced on substrates or growth media (for example, micro-organisms and lactic acid):</p> <ul style="list-style-type: none"> a) if the substance includes the substrates or growth media, the substrates or growth media ingredients shall be listed in Table 6.3, 6.4 or 6.5; b) if the substance does not include the substrates or growth media, the substance shall be produced on non-genetically engineered substrates or growth media, if 	<p>6.1.1.a) A “food additive” is any substance that becomes a component of food (exceptions are listed in the Food and Drug Regulations) or otherwise affects the characteristic of food.</p> <p>b) Whether a substance is listed in PSL Table 6.3, Ingredients classified as food additives, or Table 6.4, Ingredients not classified as food additives, consider it an “ingredient” for the purpose of its use in an organic product.</p> <p>c) Processing aids: See guidance to Clauses 9.2.1.b, 9.2.1.c, 9.2.2.c and 9.2.2.d of CAN/CGSB-32.310.</p> <p>6.2.1 Some ingredients permitted in organic production, such as citric acid, lactic acid and xanthan gum, are manufactured using microbial fermentation. The microorganisms used to drive the fermentation may be genetically engineered. The substrates or the growth media (broth) used in the fermentation may also contain genetically engineered components, such as glucose or sucrose derived from GE corn or sugar beets. The desired product (e.g., citric acid) is usually extracted and purified, allowing the leftover substrate materials to be reused in subsequent fermentation cycles. The higher the degree of purification, the less likely that there is substrate remaining in the product.</p> <p>To ensure that the PSL-listed substance is compliant based on its method of manufacture, your first step is to look for a product (e.g., citric acid) on the</p>

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<p>commercially available.”</p> <p>6.2.2 “Organic commercial availability requirements specified in the substance listing annotations of Tables 6.3, 6.4 or 6.5 apply to substances used in products composed of 95% or more organic content.”</p> <p>6.2.3 Other commercial availability requirements specified in the substance listing annotations of Tables 6.3, 6.4 or 6.5 apply to substances used in organic products composed of 70% or more organic content.</p>	<p>market that is not made with any GE organisms or contain GE ingredients (e.g., corn, soy, etc.). If these products contain any remnants of their production substrate or fermentation microorganisms, these remnants must be listed on PSL Tables 6.3-6.5. If a fully non-GE product is not commercially available, request and maintain documentation to that effect from the suppliers you contacted.</p> <p>If your selected product was produced on a GE substrate or used GE-microorganisms for fermentation, documentation must be maintained confirming that remnants of the substrate or fermentation microorganisms do not remain in the product that you will be using.</p> <p>For all substances listed in the PSL, the use of organic ingredients is preferred over the use of non-organic alternatives. However non-organic substances are allowed under certain circumstances.</p> <p>For PSL-listed substances that are ingredients or processing aids in a product that contains more $\geq 95\%$ organic ingredients, follow the annotation instructions to use organic versions when they are commercially available. Other PSL-listed substances may not have this annotation even though organic forms of them are commercially available (such as gums). For PSL-listed substances that are ingredients or processing aids in a product containing 70-95% organic ingredients, follow the annotation instructions.</p>
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TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
Acids	<p>“Including the following sources:</p> <p>a) alginic;</p> <p>b) citric—from fruit and vegetable products or produced by microbial fermentation of carbohydrate substances; and</p> <p>c) lactic.”</p>	<p>Alginic acid: Used as a stabilizer and thickener in ice creams, puddings, flavoured milk drinks, pie fillings, soups and syrups.</p> <p>Citric acid: citric acid must be concentrated from fruit, such as lemons, limes, blackberries, raspberries or tomatoes, or alternatively it may come from microbial fermentation of carbohydrate substances. Most commercial sources of citric acid are extracted from fungal fermentations of carbohydrate substrates, such as corn steep liquor, molasses or corn starch. Such fermented sources meet the requirement of the standard if the micro-organism is verified to be non-GE and the substrate restrictions in 6.2.1 are satisfied. Citric acid is mainly used as a pH adjuster (making food taste acidic or sour) or as an antioxidant to preserve food.</p> <p>Lactic acid: Commonly known as “milk acid,” although most commercial sources are created by bacterial fermentation of a carbohydrate like cornstarch, potatoes or molasses. Such fermented sources meet the requirement of the standard if the organism is verified to be non-GE and the substrate restrictions in 6.2.1 are satisfied. Lactic acid’s main function is to adjust pH which can affect microbiological activity, cooking results and textures.</p>
Activated charcoal	<p>“Shall be of plant origin. Prohibited for use in the production of maple syrup.”</p>	<p>Also called activated carbon or activated coal, this form of carbon has been processed to make it extremely porous which makes it an effective filter. It is commonly used to filter impurities out of alcohol that could affect colour, taste or odour. It is also used in the decolourization process used in sugar refining. Bone</p>

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		char, while it is a form of “activated charcoal,” is not permitted because it is not from plant sources.
Agar	“See Table 6.3 Extraction solvents and precipitation aids.”	A gelatinous substance derived from red seaweed. Used as an emulsifying, gelling, stabilizing or thickening agent. Sources must comply with any restrictions in the <i>Extraction solvents and precipitation aids</i> listing.
Alginates	“The following alginates are permitted: a) alginic acid; b) potassium alginate; and c) sodium alginate.”	Viscous gums produced by brown seaweed used as emulsifying, gelling, stabilizing or thickening agents. Alginates are effective at far lower concentrations than the animal-derived gelatine products that are commonly used.
Ammonium bicarbonate	“As a leavening agent.”	Produced by combining carbon dioxide and ammonia. Used as a leavening agent for flat baked goods such as cookies, crackers and Chinese steamed buns. Generates a slight ammonia smell during baking which quickly dissipates and leaves no taste.
Ammonium carbonate	“As a leavening agent.”	Produced by combining carbon dioxide and aqueous ammonia. Used as a leavening agent for flat baked goods, such as cookies and crackers. It also serves as an acidity regulator.
Argon		Argon is used in modified-atmosphere packaging (MAP) to displace oxygen inside food packaging (such as bags of coffee) in order to preserve freshness for retail sale.
Ascorbic acid (vitamin C)		Most commercial sources of ascorbic acid are extracted from a two-step bacterial fermentation of carbohydrate substrates, such as corn starch, corn sugar or rice. Such fermented sources meet the

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		<p>requirement of the standard if the organism is verified to be non-GE and the substrate restrictions in 6.2.1 are satisfied.</p> <p>Other commercial forms are chemically derived from a range of compounds, such as ascorbyl palmitate, calcium ascorbate, magnesium ascorbate, niacinamide ascorbate/nicotinamide ascorbate, potassium ascorbate and sodium ascorbate; these are permitted.</p> <p>Many uses in food production including the following:</p> <ul style="list-style-type: none"> • Bleaching, maturing and dough conditioning agent; • Preservative (to retain texture, colour and flavour); and • An anti-browning agent. • Ascorbates (the mineral salts of ascorbic acid) are not the same as ascorbic acid and are not permitted.
Calcium carbonate	“Prohibited for use as a colouring agent.”	<p>A mineral derived from the earth’s limestone, marble or sedimentation of crushed marine shells.</p> <p>Calcium carbonate is the main component of egg shells.</p> <p>Used as an emulsifying, gelling, stabilizing, thickening, creaming, fixing, filling, carrying and pH-adjusting agent in various products.</p> <p>Used as food for yeast in brewing and making bread.</p>
Calcium chloride	<p>“Permitted for:</p> <ul style="list-style-type: none"> a) milk products; b) fat products; c) soybean products; and d) fruits and vegetables.” 	<p>May be used as a firming agent for the product groups listed under calcium chloride.</p> <p>Di-basic: commonly used as a dough conditioner, also as a stabilizer, emulsifier, gelling or thickening agent for various cheese products. May be used in growth media (for fermentation-derived ingredients).</p>

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		Tri-basic: commonly used as an anti-caking agent, also as a conditioning agent and a yeast food in bread, an emulsifier, or anti-caking agent in dry powders (e.g., spices), as well a thickener, stabilizer and as a sequestering agent for certain dairy products.
Calcium citrate		Calcium citrate is the calcium salt derived from citric acid. Used in hard cheeses to promote enzyme activity and also as a dough conditioner in a variety of frozen foods (such as pizza or bread dough, waffles or cookies). Used as a firming agent and acidity-regulator in items such as gelatine, ice cream, carbonated beverages and jams, as well as evaporated, condensed and powdered milk.
Calcium phosphates (mono-, di-, and tri-basic forms)		Food-safe forms usually made from mined phosphate rock. Mono-basic: used as a leavening agent, dough conditioner, firming agent, pH adjuster and as sequestering agent for some dairy products. Sometimes used in growth media (for fermentation-derived ingredients).
Calcium sulphate (gypsum)	“Mined sources; calcium sulphate produced using sulphuric acid is prohibited.”	Made from fine-grinding and air-separating mined sources of this mineral. Gypsum can be used to condition water used in brewing beer and to control the tartness and clarity of wine. Helps regulate acidity and improve the stability of a variety of foods including blue cheese, ice cream, canned vegetables, breakfast cereals, soy products, soups and baked goods.
Carbon dioxide	“Carbonation of wine or mead is prohibited.”	Taken from natural wells or captured as a byproduct of fermentation (wine, beer) or a byproduct of ammonia production.

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		Used to make sparkling beverages. It is readily absorbed by many foods and consequently is not as popular as nitrogen for modified-atmosphere packaging (MAP).
Carrageenan (Irish moss)	“Shall be derived using substances listed in Table 6.3 <i>Extraction solvents and precipitation aids</i> . By exception, isopropyl alcohol may be used to derive carrageenan.”	Extracted from Irish moss red algae and commonly used as a food thickener and stabilizer.
Carriers	“Carriers of non-agricultural origin may be used if listed on Tables 6.3, 6.4 or 6.5. Non-organic carriers of agricultural origin (such as wheat starch) may be used if ingredients or processing aids containing organic carriers are not commercially available.”	Help disperse or deliver an ingredient within a product. For example, most enzyme preparations used in food processing contain carriers to help deliver and disperse the enzyme throughout the product.
Colouring agents	“From biological sources such as spices, annatto, juices made from plant sources, etc. derived using approved methods (see Table 11 B (1) & (2). Origin and mode of production of CAN/CGSB-32.310), and substances in Table 6.3 <i>Extraction solvents and precipitation aids</i> . May contain permitted carriers (see Table 6.3 & 6.4 <i>Carriers</i>).”	Usually highly purified extracts from various fruits and vegetables. They are used to help: <ul style="list-style-type: none"> • Ensure product duplicability; • Offset product losses due to colour change from light, air, temperature extremes, moisture and storage conditions; • Provide identity to foods; and • In some situations, protect flavours and vitamins from damage by light.
Enzymes	“The following sources of enzymes are permitted: a) any preparations of enzymes normally used in food processing derived from edible, non-toxic	Enzymes are molecules that increase the rate of a chemical reaction. Almost all enzymes are proteins. Those used in food processing are derived from bacteria, fungi, higher plants or animals.

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	<p>plants, non-pathogenic fungi or non-pathogenic bacteria.</p> <p>b) derived from animals—shall be organic if commercially available: rennet; catalase from bovine liver; animal lipase; pancreatin; pepsin; and trypsin. Animal-derived enzymes shall be free of Specified Risk Material (SRM); and</p> <p>c) egg white lysozyme.”</p>	<p>The enzyme chymosin is the primary active ingredient in rennet, which is used to help cheese harden. Chymosin is either extracted from the stomach lining of calves or it is propagated by genetically engineered bacteria carrying inserted chymosin gene coding. Chymosin derived by GE technology is prohibited, while chymosin extracted from calves is permitted. Chymosin from organic animals should be used if commercially available.</p> <p>Egg white lysozyme is an enzyme used to preserve foods, such as fresh fruits and vegetables, tofu, seafoods, meats and sausages, potato salad, and varieties of semi-hard cheeses, such as Edam, Gouda and some Italian cheeses.</p>
Extraction solvents, and precipitation aids	<p>“The following may be used to derive (extract) substances listed in Tables 5.2, 6.3, 6.4 and 6.5:</p> <p>a) water;</p> <p>b) culinary steam, as described in 8.1.2 b) of CAN/CGSB-32.310;</p> <p>c) fats, oils and alcohols other than isopropyl alcohol;</p> <p>d) supercritical CO₂; and</p> <p>e) substances listed in Tables 6.3, 6.4 or 6.5 of this standard.</p> <p>Precipitation aids derived from biological sources (such as plant proteins, albumin, casein, and gelatin) may also be used. In addition, non-biological precipitation aids, such as bentonite, silicon dioxide, etc., may be used if listed in Tables 6.3, 6.4 or 6.5. If</p>	<p>These substances dissolve, dilute or extract a component, ingredient, food additive or other food without exerting any other effect on their own.</p> <p>There are references to this listing in many other substance listings to ensure consistency in the methods and products used to derive certain PSL-listed substances.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

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	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
	listed in Tables 6.3, 6.4 or 6.5, precipitation aids shall meet any annotation restrictions therein.”	
Gelatine	<p>“Shall be organic if commercially available. Gelatine may be sourced from: a) plants; or b) animals. If derived from cattle, gelatine shall be guaranteed free of Specified Risk Material (SRM).”</p>	<p>Gelatine (also called gelatin) is made by extracting dried collagen hydrolysate from materials by curing, processing with acids or alkaline processing. The materials can be plants (including seaweed) or the by-products of meat or fish industries (e.g., pork skins, pork bones, cattle bones or fish skins).</p> <p>Gelatine also can be prepared at home. Boiling certain cartilaginous cuts of meat or bones results in gelatine being dissolved into the water. Depending on the concentration, the resulting stock (when cooled) will form a jelly or gel naturally. This process is used for making aspic.</p> <p>Gelatine is used as a gelling agent in gelatin foods, marshmallows, most gummy candy, and certain ice creams, dips and yogurts.</p> <p>Plant-derived hypromellose is a non-agricultural substance sometimes used as a vegetarian alternative to gelatin. It is not specifically included in the PSL; therefore, it is not permitted.</p>
Glucono delta lactone	<p>“Production by the oxidation of D-glucose with bromine water is prohibited.”</p>	<p>Gluconic acid is found in honey, wine and rice, meat and vinegar. It is produced commercially by crystallization from an aqueous solution of gluconic acid.</p> <p>Used as a tofu coagulant; acidifier; agent to control pH control; and curing, pickling or leavening agent.</p> <p>When added to water, the taste is initially sweet, then it hydrolyzes to gluconic acid giving a slightly sweet, mildly acidic taste. In many foods, this is preferred to other acids that give stronger, more acidic tastes.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
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Glycerides (mono- and diglycerides)	<p>“From organic sources if commercially available. For use in drum drying of products.”</p>	<p>Occur naturally as minor constituents of fats. Glycerides are prepared from fatty acids of animal or vegetables (soybean, canola, sunflower, cottonseed, coconut or palm oils).</p> <p>Used as an emulsifier to blend together certain ingredients, such as oil and water, which would not otherwise blend well.</p> <p>To make glycerides, a purée or slurry of food (such as milk, precooked cereals, fruit pulps, applesauce, gelatinized starch or honey) is added to one or two heated cylinders at varying feed rates depending upon viscosity. As the cylinders rotate, the slurry dries; this creates a powder that can serve as the basis for certain snacks, soups, baked chips, bakery items and cereals.</p>
Glycerol (glycerine, glycerin)	<p>“Shall be from organic sources if commercially available. Shall be from vegetable oil or animal fat. Shall be produced using fermentation or by hydrolysis.”</p>	<p>Commonly used as flavour carrier, colour carrier and/or thickener. Also used to improve textures and/or help retain moisture in a product. Also used as a stabilizer if product contains a mixture of water and oil.</p> <p>Can be found in dairy products, including cheese, yogurt, powdered milk, powdered cream, condensed milk, whey products, clotted cream and dairy-based drinks.</p>
Gums	<p>“The following gums are permitted: arabic gum, carob bean gum (locust bean gum), gellan gum, guar gum, karaya gum, tragacanth gum, and xanthan gum. Shall be derived using substances listed in Table 6.3 <i>Extraction solvents and precipitation aids</i>. By exception, isopropyl alcohol may also be used to derive gums.”</p>	<p>These plant-based gums are commonly used to emulsify, gel, stabilize or thicken various foods. Many of these are commercially available in organic form, in which case producers are expected to use the organic form.</p> <p>Arabic: gum arabic, also known as acacia gum, is a natural gum made of the hardened sap of various species of the acacia tree. Carob bean (locust bean): locust bean gum is a galactomannan</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
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		<p>vegetable gum extracted from the seeds of the carob tree, mostly found in the Mediterranean region.</p> <p>Gellan: gellan gum is a water-soluble polysaccharide made by fermenting the bacteria <i>Sphingomonas elodea</i>. The result is an off-white powder that some companies use in place of agar agar as a vegan/vegetarian gelling agent for products such as gummy candies.</p> <p>Guar: guar gum is primarily derived from the ground endosperm of guar beans. The guar seeds are dehusked, milled and screened to obtain the guar gum. It is typically produced as a free-flowing, off-white powder.</p> <p>Karaya: karaya gum comes from the <i>Sterculia urens</i> tree. It is traditionally tapped by cutting or peeling back the bark.</p> <p>Tragacanth: tragacanth gum is a viscous, odourless, tasteless, water-soluble mixture from the sap of goat's thorn or locoweed species. The gum seeps from the plant in twisted ribbons or flakes which can be powdered.</p> <p>Xanthan: Made by fermenting simple sugars with the <i>Xanthomonas campestris</i> bacteria. The result is a slimy goo that is dried and ground into a fine white powder.</p>
Kelp and kelp products	“For use as a thickener and dietary supplement.”	Large seaweed belonging to the brown algae group which is wild-harvested and dried.
Lecithin	“Shall be organic if commercially available. The bleached form is permitted if processed using food-grade hydrogen peroxide.”	A source of choline, this yellow-brownish fatty substance is found in animal and plant tissues. Most commonly prepared from soybeans or eggs.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		Used as a releasing agent (also prevents sticking and reduces spattering during frying); an emulsifier (in chocolate and fat spreads); and an antioxidant.
Magnesium carbonate	“As an anti-caking agent in non-standardized dry mixes (e.g., seasonings) used in meat products with 70-95% organic content.”	While mined sources from the mineral magnesite exist, most commercial products result from the reaction between any soluble magnesium salt and sodium bicarbonate. Only permitted for use as an anti-caking agent in spice mixes used in meat products containing 70-95% organic ingredients – not permitted in products that are $\geq 95\%$ organic.
Magnesium chloride	“Derived from seawater.”	A white powder produced from seawater after the sodium chloride has been removed and the water has evaporated. Used primarily as a tofu coagulant. In Japan it is sold as nigari (meaning “bitter”).
Magnesium stearate	“For use as an anti-caking or releasing agent in products whose contents are $\geq 70\%$ and $< 95\%$ organic ingredients.”	Magnesium stearate is produced by the reaction of sodium stearate with magnesium salts or by treating magnesium oxide with stearic acid, although it may also be sourced from vegetable-derived stearic acid (keep in mind the need to avoid products made from genetically engineered crops). Only permitted for use as an anti-caking agent or releasing agent in products containing 70-95% organic ingredients – not permitted in products with $\geq 95\%$ organic ingredients.
Magnesium sulphate		Used as brewing salt in beer production to adjust ion content of the brewing water, enhance enzyme action in the mash or promote a desired flavour profile. Also used as a coagulant in making tofu.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
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Malic acid		<p>Malic acid is generated during fruit metabolism and occurs naturally in all fruits and many vegetables. For example, it is present in grapes and in most wines. It also contributes to the sourness of green apples. The taste of malic acid is very clear and pure in rhubarb; malic acid provides the primary flavour of rhubarb.</p> <p>Used as a flavour enhancer in a variety of foods, including hard and soft candies, sherbets and water ices, chewing gum, fruit preserves and bakery items with fruit fillings. Malic acid is added to soy yogurt to mimic the sour taste of traditional cow's milk yogurt.</p>
Meat curing agents	<p>“Extracts, juice or cultured powder of celery or chard are permitted. Shall be organic if commercially available.”</p>	<p>High concentrations of nitrates are found in celery, lettuce, spinach and beets. Powder or juice from these vegetables can be fermented with a nitrate-reducing bacterial culture to produce nitrites.</p> <p>If commercially available, operators should use organic sources of celery or chard.</p> <p>Used in cured meat products, such as bacon, ham, hot dogs and bacon. As well as adding colour and flavour, nitrites help control pathogens and keep the fat from becoming rancid.</p>
Ozone		<p>Ozone is a highly reactive form of oxygen. It is a potent oxidant/disinfectant that quickly decomposes to diatomic oxygen (O₂), while reacting with targeted 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 is also useful in deodorizing air and water.</p>
Pectin	<p>“High-methoxyl and low-methoxyl pectin sources are permitted.”</p>	<p>A naturally-occurring polysaccharide found in many plants. Most commercial pectin is made from fruit (specifically citrus rind) or</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		<p>vegetables. It has traditionally used to thicken jams and jellies.</p> <p>High-methoxyl pectin is the form of pectin traditionally used for canning applications. It requires high amounts of sugar to gel and is very sensitive to acidity.</p> <p>Low-methoxyl pectin has been used in the food industry to create low-sugar jams because it does not require high sugar levels to gel. It is also less sensitive to acidity and can be used as a fat substitute in baked goods and to stabilize acidic protein drinks such as drinking yogurt.</p> <p>Amidated versions of pectin are permitted.</p>
Potassium acid tartrate (KC₄H₅O₆)	“From grapes/wine-making.”	<p>Also known as potassium bitartrate and cream of tartar. It is a by-product of winemaking; it crystallizes in wine casks during the fermentation of grape juice.</p> <p>Potassium acid tartrate is used:</p> <ul style="list-style-type: none"> • To stabilize egg whites and whipped cream; • As an anti-caking agent; • As a thickening agent; • To prevent sugar syrups from crystallizing; • As a component of baking powder (as an acid ingredient to activate baking soda); and • As a component of sodium-free salt substitutes in combination with potassium chloride. <p>It can be confused with sodium acid pyrophosphate because of their common function as a component of baking powder.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
Potassium carbonates (mono- and bi-)		<p>Prepared commercially by the electrolysis of potassium chloride.</p> <p>Used as a pH adjuster. When added to cocoa powder, it balances the pH, enhances the aroma and darkens the colour – this is called the Dutch-process or “dutching.” Also can be used as a buffering agent in the production of mead or wine.</p> <p>Potassium bicarbonate is used as a source of carbon dioxide for leavening in baking, an additive in winemaking and a base in foods and to regulate pH. It is a common ingredient in club soda, where it is used to soften the effect of effervescence.</p>
Potassium chloride	“From mined sources such as sylvite, carnalite, and potash.”	<p>Occurs naturally as the mineral sylvite and is found combined in many minerals and in brines and ocean water.</p> <p>Potassium chloride can be found in beverages including coffee, herbal tea, tea, alcoholic beverages and cider. It is specifically permitted as a yeast food for ale, beer, light beer, malt liquor, porter and stout.</p> <p>Because potassium chloride is a key ingredient in certain salt substitutes, it is also found in many reduced-sodium foods, including certain canned soups.</p> <p>Is sometimes used to help gel or thicken artificially sweetened jellies and preserves.</p> <p>Is also used in artificial sweeteners, condiments, seasonings, broth, sauces, vinegar, mustard, deli salads, yeast and diet foods.</p>
Potassium citrate		<p>Potassium citrate is produced by adding potassium bicarbonate or potassium carbonate to a solution of citric acid until effervescence ceases; the solution is then filtered and the water allowed to</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
		<p>evaporate. The resulting granulated substance is potassium citrate.</p> <p>Commonly used to adjust the pH of various foods which affects the microbiological activity, cooking results, textures and stability.</p> <p>Used in a wide variety of processed foods including beverages, syrups, pasteurized dairy products, processed vegetables, candies, pastas, processed rice products, condiments, seasonings and soups.</p>
Potassium metabisulphite	“See Table 6.3 Sulphur dioxide, anhydrous (SO ₂).”	
Potassium phosphate (mono-, di-, and tribasic forms)	“For use in products whose contents are ≥70% and <95% organic ingredients.”	<p>Only permitted for use in products with 70-95% organic ingredients – not permitted in products with ≥95% organic ingredients.</p> <p>Potassium phosphate is a generic term for the salts of potassium and phosphate ions.</p> <p>Used to help stabilize, thicken and regulate the acidity and moisture in foods. Used in large amounts in soft drinks, canned fish, processed meats, sausages, ham and baked goods. Many other processed foods may also contain added potassium phosphate.</p>
Potassium tartrate (K₂C₄H₄O₆. INS 336)		<p>Potassium tartrate is the potassium salt of tartaric acid and is often confused with potassium acid tartrate.</p> <p>Occurs naturally in many plants, particularly grapes, bananas and tamarinds. Potassium tartrate is one of the main acids in wine.</p> <p>Is used as a beer foaming agent; taste adjuster (adding sour flavour or masking other tastes); acidity regulator (in grape juices and wines); and an agent to slow down or prevent oxidation.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
Silicon dioxide (silica)	“No restrictions on sources or uses except for maple (see 7.2.12.6 – CAN/CGSB 32.310).”	<p>Also known as silica, this substance is found in many plants, especially whole grains and certain fruits and nuts.</p> <p>Used primarily as a flow (anti-caking) agent in powdered foods or as a desiccant. Because of the nature of the process used to make this substance for commercial use, it is imperative to only use food-grade silicon dioxide for organic products.</p>
Sodium acid pyrophosphate	“For use as a leavening agent.”	<p>Is prepared by thermal dehydration of monosodium phosphate.</p> <p>Used to help create leavening properties in refrigerated dough products, such as frozen waffles, and in commercially prepared cake, pudding, waffle, pancake and muffin mixes.</p>
Sodium bicarbonate (baking soda)		<p>Made by either Solvay (using mined limestone) or Trona (using mined Trona ore) processes. Also known as bicarbonate of soda.</p> <p>Used in baking powder (as a pH regulator), as a leavening agent for baked goods, and as an anti-caking agent.</p>
Sodium carbonate (soda ash)	“If biological or mined sources are not commercially available, synthetic forms are permitted.”	<p>It can be extracted from the ashes of many plants growing in sodium-rich soils, such as vegetation from the Middle East, kelp from Scotland and seaweed from Spain. Because the ashes of these sodium-rich plants were noticeably different from ashes of timber (used to create potash), they became known as “soda ash.” It is synthetically produced in large quantities from salt (sodium chloride) and limestone by a method known as the Solvay process.</p> <p>Used as an acidity regulator, anti-caking agent, raising agent and stabilizer.</p> <p>Gives ramen noodles their characteristic flavour and texture, and is used in the production of sherbet powder.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
Sodium chloride		Common table salt.
Sodium citrate		Possesses a saline or mildly tart flavour. Used as a buffering agent, stabilizer and antioxidant/preservative. Commonly known as sour salt.
Sodium hydroxide (lye or caustic soda)		Made through the electrolysis of an aqueous solution of sodium chloride. Extensive uses as a food additive (pH buffering agent, carbonating agent, heat stabilizer, softener and thickener) and as a processing aid (see Table 6.5 for restrictions on processing aid use).
Sodium phosphates	“For use in dairy products.”	Used as an emulsifier to prevent fat separation.
Sulphur dioxide, anhydrous (SO ₂)	“Sulphites from SO ₂ -bottled gas; as liquid SO ₂ ; or liberated from ignition of asbestos-free sulphur wicks are permitted. <i>Sulphurous acid</i> (aqueous sulphur dioxide) and <i>Potassium metabisulphite</i> are also permitted. For use as a preservative in alcoholic beverages; minimal use of SO ₂ is recommended. Maximum allowable levels of SO ₂ in parts per million (ppm) are: a) in alcoholic beverages containing less than 5% residual sugar, 100 ppm and 30 ppm for total and free sulphites, respectively;	SO ₂ prevents the growth of most wild micro-organisms and acts as a potent antioxidant protecting both the colour and flavours in wine. Wine yeast produces sulphur dioxide (SO ₂) during fermentation, so it is almost impossible to make a sulphite-free wine; wines with no added sulphite usually contain 6 to 40 ppm of sulphite. Free SO ₂ is the portion that is not bound with aldehydes (which are natural byproducts of fermented and unfermented sugars) or other oxidizable substances in the wine. Free SO ₂ protects the wine from oxidation and microbial activity. Free SO ₂ will disappear over time into a wine, binding with the substrates mentioned above while simultaneously increasing the chance of spoilage as well. Higher levels of total and free sulphites are permitted in wines with higher sugar levels as it is not possible to produce these wines

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
	<p>b) in alcoholic beverages containing 5%-10% residual sugar, 150 ppm and 35 ppm for total and free sulphites, respectively; and</p> <p>c) in alcoholic beverages containing more than 10% residual sugar, 250 ppm and 45 ppm for total and free sulphites, respectively.”</p>	<p>using the same rates of SO₂ as table wines. This is because until all the binding partners (aldehydes) are saturated, there is no free sulphur available to protect the dessert wine from oxidization or bacterial spoilage.</p> <p>Potassium metabisulphite is a common wine or must additive that produces sulphur dioxide gas (SO₂). It can be used as an alternative to sulphur wicks and bottled SO₂ as it is safer, more readily available and easier to handle in smaller quantities.</p>
Sulphurous acid	“See Table 6.3 Sulphur dioxide, anhydrous (SO ₂).”	
Tartaric acid (C₄H₆O₆, INS 334)	“From lees. For beverages.”	<p>Tartaric acid is a white crystalline acid that occurs naturally in many plants, most notably in grapes.</p> <p>Is added to beverages to impart its distinctive sour taste.</p>
Tocopherols and mixed natural concentrates	“Derived from vegetable oil when rosemary extract is not a suitable alternative.”	<p>Natural mixed tocopherols are a family of vitamin E compounds found in vegetable oils, nuts, fish and leafy green vegetables.</p> <p>Used to preserve the taste and prevent the oxidation or rancidity of many foods that contain oils and fats.</p>
Vegetable oils	<p>“Shall be organic if commercially available. Derived using substances listed in Table 6.3 <i>Extraction solvents and precipitation aids</i>.</p> <p>Maple syrup production—vegetable oils shall be organic and without allergenic potential.”</p>	<p>Historically, organic sources were not available for certain applications but now processors are expected to use organic vegetable oils.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
Waxes, produce	<p>“Organic beeswax and organic carnauba wax may be used to wax produce. See 9.2.1 d) of CAN/CGSB-32.310 if organic wax is commercially unavailable.</p> <p>For other wax uses, see Table 6.5 Waxes.”</p>	<p>An example of a plant-based wax is carnauba wax, which comes from the leaves of a Brazilian palm.</p> <p>Organic waxes are preferred. Non-organic wax may be used if organic wax is not available, but the source must be confirmed to be non-GE, non-irradiated and not from cloned sources.</p>
Yeast	<p>“If organic sources of yeast are not commercially available, these alternative sources of yeast may be used:</p> <p>a) autolysate;</p> <p>b) bakers' (may contain lecithin, as listed in Table 6.3);</p> <p>c) brewers';</p> <p>d) nutritional; and</p> <p>e) torula.</p> <p>Growth on petrochemical substrate and sulphite</p>	<p>Yeast are various single-cell fungi that mainly replicate through budding and are able to ferment carbohydrate substrates.</p> <p>a) Autolysate yeast: intense and distinctive extracts used to manufacture certain food products. Created by adding salt to a yeast suspension causing the yeast cells to shrivel further using its own enzymes to break down its proteins into simpler compounds. This process of self-destruction is known as autolysis. The dying yeast cells are then heated to complete their breakdown, after which the husks are separated (because the husks from yeast with thick cell walls would create a poor texture in the food product);</p> <p>b) Baker's yeast: the common name for the strains used as a leavening agent in baking bread and related products, where they convert the fermentable sugars present in the dough into carbon dioxide and ethanol;</p> <p>c) Brewers' yeast (also known as brewer's yeast or brewing yeast): can mean any live yeast used in brewing.</p> <p>d) Nutritional yeast: similar in appearance to brewers' yeast but has a nutty, cheesy, creamy flavour and is a dried by-product of brewing. Used as a dietary supplement for its B vitamin content.</p> <p>e) Smoked yeast (also known as bacon yeast or hickory-smoked yeast): yeast that has been smoked, giving it a bacon-like flavour.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.3 – INGREDIENTS CLASSIFIED AS FOOD ADDITIVES: ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS* PSL	COG'S GUIDE TO THE STANDARDS
	<p>waste liquor is prohibited.</p> <p>Yeast may be smoked or smoke-flavoured. When smoked, the smoke must come from concentrated, condensed smoke from wood without additional ingredients (unless listed in Tables 6.3, 6.4 or 6.5).”.</p>	<p>Used to flavour other dishes.</p> <p>Use organic forms of yeast when commercially available.</p> <p>If using non-organic strains, request documentation from your suppliers confirming the requirements regarding petrochemical substrate, sulphite waste liquor and, if it is a smoked yeast, details about the smoking process.</p>
Yeast foods	<p>“For use in alcoholic beverages:</p> <p>a) potassium chloride—permitted for ale, beer, light beer, malt liquor, porter and stout; and</p> <p>b) dibasic ammonium phosphate (diammonium phosphate, DAP), restricted to 0.3 g/L (0.04 oz./gal.)—permitted for cider, mead and wine.”</p>	<p>Used for alcoholic beverages to feed the yeast required for fermentation. Dibasic ammonium phosphate is also used to start secondary fermentation in the production of sparkling wines.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

TABLE 6.4 – INGREDIENTS NOT CLASSIFIED AS FOOD ADDITIVES

SUBSTANCE NAME(S)	TABLE 6.4 – INGREDIENTS NOT CLASSIFIED AS FOOD ADDITIVES - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
Carriers	<p>“Carriers of non-agricultural origin may be used if listed on Tables 6.3, 6.4 or 6.5. Non-organic carriers of agricultural origin (such as wheat starch) may be used if ingredients or processing aids containing organic carriers are not commercially available.”</p>	<p>Help disperse or deliver an ingredient within a product. For example, most dough conditioners contain carriers to help disperse the enzyme throughout the dough.</p>
Collagen casings	<p>“Collagen shall be derived from animal sources. If derived from cattle, collagen shall be guaranteed free of Specified Risk Material (SRM).</p> <p>Other ingredients (such as, but not limited to: cellulose, calcium coatings, glycerin, etc.) added to collagen casings during their manufacture that remain in the collagen casing when it is used shall respect the requirement provided in 1.4 a) of CAN/CGSB-32.310.</p> <p>Permitted for poultry sausage.”</p>	<p>Collagen casings are permitted to be used in accordance with this annotation, but only for poultry sausages.</p> <p>No GE ingredients can be added while making the casings.</p> <p>Cellulose is intended for use only in the ways listed in the PSL; for example, it cannot be used as a flow agent in grated cheese.</p>
Cultures	<p>“See Table 6.4 Micro-organisms.”</p>	
Flavours	<p>“Derived from biological sources using approved methods (see Table 11 B (1) & (2) Origin and mode of production of CAN/CGSB-32.310), and substances (see Table 6.3 <i>Extraction solvents and precipitation aids</i>).</p> <p>May contain permitted carriers (see Table 6.3 & 6.4 <i>Carriers</i>).”</p>	<p>Permitted flavours are made by concentrating plant, animal or micro-biological products (e.g., fruit, leaves, stem, bark, fungi, yeast, meat products, poultry products, dairy products, fermented products, etc.). Most are extracted by water or alcohol, or generated through distillation or fractionation. Carriers are restricted according the <i>Carriers</i> listing in this table.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.4 – INGREDIENTS NOT CLASSIFIED AS FOOD ADDITIVES - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
		<p>Artificial flavours, which are chemically modified in a way that makes them different from their natural chemical state, are prohibited.</p> <p>Flavours are used to:</p> <ul style="list-style-type: none"> • Help ensure product duplicability; • Provide identity to foods; and • Offset loss due to light, air, extremes of temperature, moisture and storage conditions.
Micro-organisms	<p>“Microbial preparations may contain substrates derived from agricultural or biological substances such as milk, lactose, soy, agar, etc. May also contain permitted carriers (see Table 6.3 & 6.4 Carriers).</p> <p>Includes starter and dairy cultures and other preparations of micro-organisms normally used in product processing.”</p>	<p>Dairy cultures: Micro-organisms especially selected and developed for their use in dairy manufacturing including bacteria, yeasts and moulds. They may not be products of genetic engineering or from cloned animals.</p> <p>Micro-organisms (processing derivatives): Bacteria, fungi and other micro-organisms used in brewing, winemaking, baking, pickling and the production of dairy products such as yogurt and cheese. Not only can micro-organisms add characteristic flavours and aromas, but some can inhibit the growth of undesirable organisms. They may not be products of genetic engineering.</p>
Nitrogen	<p>“Shall be food-grade quality.”</p>	<p>Nitrogen is separated from atmospheric air. May be from a purchased source or generated on site.</p> <p>Used to:</p> <ul style="list-style-type: none"> • Slow down the growth of aerobic life forms and the speed of oxidation reactions; • Maintain the taste profile of beer, wine, juice and other beverages;

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.4 – INGREDIENTS NOT CLASSIFIED AS FOOD ADDITIVES - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
		<ul style="list-style-type: none"> • Dispense draft beer; and • Provide a pressurized dry atmosphere that prevents package collapse for delicate foods like chips and crackers.
Oxygen		<p>Oxygen is separated from atmospheric air.</p> <p>Used in combination with other gases in controlled atmosphere storage.</p>
Potassium iodide	“Shall be used when legally required or permitted.”	<p>Can be extracted from salt brine. Occurs naturally in kelp, which contains 0.4 to 1.3% of iodine in the form of iodide salts such as potassium iodide.</p> <p>Normally added to table salt in small quantities to make it “iodized.”</p>
Salt	<p>“Substances listed in Tables 6.3 or 6.4 may be added to mined or sea salt.</p> <p>See Table 6.3 Sodium chloride; Potassium chloride.</p> <p>See definition of Salt in clause 3 of CAN/CGSB-32.310.”</p>	<p>Including sodium chloride, low-sodium and sodium-free substitutes. Provides salt flavour, nutrition or microbial control.</p>
Smoke flavour	“See Table 6.3 <i>Yeast</i> .”	<p>Artificial smoke flavour is not permitted. Only yeast, such as torula yeast, may be smoked. The smoked yeast can provide nutrition and flavour to foods (often vegetarian foods).</p>
Starch	<p>“From rice and waxy maize—Shall be derived using substances listed in Table 6.3 <i>Extraction solvents and precipitation aids</i>, where applicable. Starch shall not be modified by chemicals. Starch may be modified using physical or enzymatic methods.</p> <p>Cornstarch—May contain substances that are</p>	<p>Shall be organic if commercially available. If organic starch is not available, only non-organic rice or waxy maize starches meeting the requirements of the <i>Extraction solvents and precipitation aids</i> listing are permitted.</p> <p>Native starch is the granular starch component recovered from the original plant source by extraction, milling, wet grinding,</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.4 – INGREDIENTS NOT CLASSIFIED AS FOOD ADDITIVES - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
	plant-derived or listed in Tables 6.3, 6.4 or 6.5.”	washing, sieving and drying. Keep in mind that starch made from genetically engineered crops cannot be used. Used as thickeners and stabilizers in foods (such as puddings, custards, soups, sauces, gravies, salad dressings) and to make noodles and pasta.
Vitamins and mineral nutrients	<p>“Shall be used if legally required (e.g., fluid milk, white flour, infant formula, meal replacement, etc.).</p> <p>The following non-dairy substitute products may be fortified on a voluntary basis, if legally permitted: plant-based beverages, products that resemble cheese, and butter substitutes.</p> <p>Ferrous sulphate—Shall be used if legally required and may be used, on a voluntary basis, if legally permitted.”</p>	<p>A vitamin is an organic compound required as a nutrient in tiny amounts that cannot be made in sufficient quantities by an organism and must be obtained from the diet.</p> <p>A mineral refers to an inorganic compound necessary for life and good nutrition. These can be naturally occurring in food or added in elemental or mineral form to food.</p> <p>These products may contain non-agricultural sub-parts not listed in the PSL. These are permitted as long as the non-agricultural sub-parts do not have an effect on the final product (within which the vitamin or mineral nutrient is used as an ingredient) and they are declared on the final organic product label (9.1.2 of 32.310).</p> <p>Ferrous sulphate: an astringent iron salt added to replace iron lost in processing.</p> <p>Calcium compounds and Vitamin C (ascorbic acid) can be added to foods such as orange juice if they are used as stabilizers and preservatives. However, vitamins and calcium wouldn't be allowed if they were added for nutritional fortification because they are not “legally required” in juice and juice is not a non-dairy substitute like almond or oat milk for example. Juice is categorized as a voluntary fortification option by the Canadian Food & Drug Regulations. Refer to CFIA's “Foods to Which Vitamins, Mineral Nutrients and Amino Acids May or Must be Added.”</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.4 – INGREDIENTS NOT CLASSIFIED AS FOOD ADDITIVES - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
Yeast	<p>“If organic sources of yeast are not commercially available, these alternative sources of yeast may be used:</p> <ul style="list-style-type: none"> a) autolysate; b) bakers' (may contain lecithin, as listed in Table 6.3); c) brewers'; d) nutritional; and e) torula. <p>Growth on petrochemical substrate and sulphite waste liquor is prohibited.</p> <p>Yeast may be smoked or smoke flavoured. When smoked, the smoke must come from concentrated, condensed smoke from wood without additional ingredients (unless listed in Tables 6.3, 6.4 or 6.5).”</p>	See Table 6.3.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

TABLE 6.5 – PROCESSING AIDS

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
<i>Acer pennsylvanicum</i>	“As an anti-foaming agent in maple syrup production.”	Also known as striped maple, Pennsylvania maple wood or moosewood. When maple sap boils, foam accumulates on the surface of the boiling sap. Foaming can be reduced by adding Pennsylvania maple wood to the boiling sap, which reduces the need to skim excess foam off the surface of the boiling sap for disposal. For more details on maple syrup processing, refer to 7.2 Maple Products.
Activated charcoal	“Shall be of plant origin. Prohibited for use in the production of maple syrup.”	See guidance in Table 6.3.
Alcohol, ethyl (ethanol)	“Shall be organic if commercially available.”	Also called pure alcohol, grain alcohol, or drinking alcohol. Is a volatile, flammable, colourless liquid that can be mixed with water and is therefore a good solvent or carrier for flavours, colours and tinctures.
Argon		See guidance in Table 6.3.
Ascorbic acid (vitamin C)	“For use as an anti-browning agent prior to the extraction or concentration of fruit or vegetable juice.”	See guidance in Table 6.3.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
Bentonite		<p>A mined clay product.</p> <p>Used as a filtering medium. Bentonite has a unique property of adsorbing relatively large amounts of protein molecules from aqueous solutions. In this way, it helps keep white wines free from getting cloudy in warm temperatures. It also induces more rapid clarification of both red and white wines.</p>
Calcium carbonate		<p>Calcium carbonate is a mineral derived from the earth's limestone, marble or sedimentation of crushed marine shells. Is the main component of eggshells.</p> <p>Used in cocoa processing and s a processing aid to bleach flour.</p>
Calcium hydroxide (lime)		<p>Commonly used to produce corn flour (masa) through nixtamalization. Nixtamalization is the soaking and cooking of whole corn grains in a lime solution resulting in the separation of the outer hull from the inner grain. The resulting grain can then be effectively dried and ground increasing the availability of both protein and vitamins.</p> <p>The production of sugar from both sugar cane and sugar beets also requires the addition of calcium hydroxide, as the raw juices are low in pH and contain dissolved impurities. Hydrated lime is added to the juice to raise the pH and to react with the impurities to form insoluble calcium organic compounds that can be removed.</p>

*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 28

**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
Calcium sulphate (gypsum)	<p>“Sulphates produced using sulphuric acid are prohibited. May be used: a) as a carrier for cakes and biscuits; b) for soybean products; and c) for bakers' yeast.”</p>	<p>The processing aid is made from fine-grinding and air-separating mined sources of the mineral. Note that this annotation is different than the ingredient listing in Table 6.3. As a processing aid, it is only permitted for the uses described in the annotation.</p>
Carbon dioxide (CO₂)		<p>Taken from natural wells or captured as a by-product of fermentation processes (wine, beer) or ammonia production. Used in modified atmosphere packaging to displace oxygen, lower the pH and inhibit bacterial growth. Liquid carbon dioxide can be used in the decaffeination process of coffee beans.</p>
Carrageenan (Irish moss)	<p>“Derived using substances listed in Table 6.3 <i>Extraction solvents and precipitation aids.</i>”</p>	<p>Extracted from Irish moss red algae. Used as a clarifying agent in alcoholic beverages.</p>
Casein	<p>“Shall be from organic sources if commercially available. Non-organic casein shall be derived from the milk of animals not treated with rBGH (recombinant bovine growth hormone).”</p>	<p>Casein is a milk protein also known as caseinogen. Commonly used as a binding agent as it is not susceptible to denaturing when exposed to high heat or acid.</p>
Citric acid	<p>“From fruit and vegetable products or produced by microbial fermentation of carbohydrate substances.”</p>	

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
Clay dust	“As a filtering agent in maple syrup production.”	
Cellulose	“As a filtering aid (non-chlorine bleached) and for use in inedible regenerative sausage casings. The TCF (Totally Chlorine Free) method of bleaching is permitted.”	<p>From plant fibres.</p> <p>Cellulose cannot be used in any ways other than the ones listed in the PSL; for instance, it cannot be used as a flow agent in grated cheese.</p> <p>The manufacturing of non-chlorine bleached cellulose using the Totally Chlorine Free (TCF) method of production was determined to be environmentally sound and comply with organic standards. But operators need to check that the raw source of cellulose is from non-GE sources (32.310 1.4 a).</p>
Diatomaceous earth	“As a food filtering aid or as a clarifying agent.”	<p>Diatomaceous earth is also known as DE, diatomite, kieselgur or kieselguhr. Consists of the fossilized remains of diatoms, a type of hard-shelled algae. Their hard shells are made from the soluble silica (sand) in their marine environment.</p> <p>Used to filter beer and wine. Also can filter wine, syrups, sugar and honey without removing or altering their colour, taste or nutritional properties.</p>
Enzymes	“The following sources of enzymes are permitted: a) any preparations of enzymes normally used in food processing derived from edible, non-toxic plants, non-pathogenic fungi or non-pathogenic bacteria;	See entry in Table 6.3.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE		
SUBSTANCE NAME(S)	CANADIAN ORGANIC STANDARDS PSL*	COG'S GUIDE TO THE STANDARDS
	<p>b) animal-derived—shall be organic if commercially available: rennet; catalase from bovine liver; animal lipase; pancreatin; pepsin; and trypsin. Animal-derived enzymes shall be free of Specified Risk Material (SRM);</p> <p>c) egg white lysozyme.”</p>	
Gelatine	<p>“Shall be from organic sources if commercially available.</p> <p>Permitted sources are:</p> <p>a) plants; and</p> <p>b) animals. Animal gelatine may be used in preparations of canned meat or as a gelling agent for gummed candy. If derived from cattle, gelatine shall be guaranteed free of Specified Risk Material (SRM).”</p>	See entry in Table 6.3.
Hydrogen peroxide	<p>“Food-grade. For use as a bleaching agent for proteins and starches.”</p>	<p>There are many grades of hydrogen peroxide and 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>
Isinglass	<p>“As a fining agent (fish-based).”</p>	<p>Isinglass is derived from the swim bladder of fishes and is an excellent source of high-quality collagen (protein).</p> <p>Used mainly as a clarification (fining) agent for beer and wine.</p>

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
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Kaolin	“As a clarifying agent.”	Kaolin is a type of clay similar to bentonite. Used to remove solid matter that causes cloudiness in a liquid.
Lecithin	“Shall be organic if commercially available. Bleached form is permitted if processed using food-grade hydrogen peroxide.”	See entry in Table 6.4.
Nitrogen	“Shall be food-grade quality.”	See entry in Table 6.4.
Oxygen		See entry in Table 6.4.
Ozone		Ozone is a highly reactive form of oxygen. It is a potent oxidant/disinfectant that quickly decomposes to diatomic oxygen (O ₂) while reacting with targeted organic matter or micro-organisms. Used to purify drinking water, sterilize containers for aseptic packaging, decontaminate fresh produce, and preserve food in cold storage. Ozone also is useful in deodorizing air and water.
Perlite	“For use as a filtering aid.”	Perlite is a generic name for naturally occurring siliceous volcanic rock that expands up to 20 times its original volume when it is heated to its softening range. Perlite filter aids do not impart taste, colour or odour to the liquids being filtered.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
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Potassium carbonate		Potassium carbonate is prepared commercially by the electrolysis of potassium chloride.
Potassium hydroxide (caustic potash)	“For pH adjustment. Prohibited for use in lye peeling of fruits and vegetables.”	Potassium hydroxide and are often used interchangeably, but sodium hydroxide tends to be less costly and hence preferred. Used in chocolate and cocoa processing, caramel colour production, and soft drink processing.
Silicon dioxide (silica)	“No restrictions on sources or uses except for maple (see 7.2.12.6 – 32.310)”	See entry in Table 6.3.
Sodium bicarbonate (baking soda)		See entry in Table 6.3.
Sodium hydroxide (lye or caustic soda)	“Prohibited for use in lye peeling of fruits and vegetables.”	Sodium hydroxide is made through the electrolysis of an aqueous solution of sodium chloride. Used to soften olives or soak dried corn kernels to make hominy, corn nuts or grits. German pretzels are poached in cold sodium hydroxide solution before baking which contributes to their unique crust. See <i>Potassium hydroxide (caustic potash)</i> listing for more information.
Talc	“As a filtering agent.”	Talc is a clay mineral composed of hydrated magnesium silicate.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
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		Commonly used a filtering aid for olive oil.
Tannic acid	“Shall be from an organic source if commercially available. Shall be derived using substances listed in Table 6.3 <i>Extraction solvents and precipitation aids</i> . Permitted as a filtration aid for wines.”	Tannic acid is a specific commercial form of tannin which is a type of polyphenol. Usually extracted from tara pods, gallnuts or Sicilian sumac leaves. Used as a clarifying agent for wine.
Tartaric acid (C₄H₆O₆. INS 334)	“From lees. For beverages.”	See entry in Table 6.3.
Vegetable oils	“From organic sources if commercially available. Derived using substances listed in Table 6.3 <i>Extraction solvents and precipitation aids</i> . Maple syrup production—vegetable oils shall be organic and without allergenic potential.”	In certain applications, such as oils in spray form to be used as release agents, organic sources may not be commercially available. Given the widespread availability of organic vegetable oil, non-organic oils can only be used in certain specialized applications where there are no organic sources available commercially. In these situations, for example when an organic vegetable oil spray cannot be sourced, a non-organic oil spray can be used only if it was derived using the <i>Extraction solvents and precipitation aids</i> listed in Table 6.3.
Waxes	“If organic waxes, such as beeswax or caruaba, are not commercially available, waxes derived from non-organic biological sources may be used. Edible wax cheese coatings that require a knife to cut or	Carnauba comes from the leaves of a Brazilian palm.

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.

SUBSTANCE NAME(S)	TABLE 6.5 – PROCESSING AIDS - ORIGIN AND USAGE	
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	<p>peel the wax away shall not contain paraffin, microcrystalline wax, non-listed preservatives, colours, bactericides or fungicides.</p> <p>Non-edible, fully removable (i.e., no knife is needed to cut or peel the wax away from the cheese), non-organic cheese wax may be used and shall be considered packaging per 8.1.6 of CAN/CGSB-32.310.</p> <p>For waxes applied to produce – see Table 6.3 Waxes, produce.”</p>	

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**See the Q&As from the Standards Interpretation Committee at organicfederation.ca/final-questions-and-answers-canadian-organic-standards.