

PSL (CAN/CGSB-32.311) Amendments with Impacts

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This article only discusses substantive changes made to the **Permitted Substance List** by Amendments 1 thru 3. These changes may require operators to modify their current activities to assure compliance in 2009.

4 – PERMITTED SUBSTANCES LISTS FOR CROP PRODUCTION

4.2 - Soil Amendments

The levels of acceptable trace contaminants in **ash (plant and animal)** from off-farm sources now have to meet the category C1 requirements outlined in Environnement Quebec's "Guidelines for beneficial use of fertilizing residuals" www.mddep.gouv.qc.ca/matieres/mat_res-en/fertilisantes/critere/index.htm. For arsenic (13 mg/kg), cadmium (3 mg/kg), chromium (210 mg/kg), copper (400 mg/kg), lead (150 mg/kg) and mercury (0.8 mg/kg).

The **bone meal** annotation duplicates the specified risk material requirements outlined in the CFIA's Fertilizer Regulation and states "*Permitted only if guaranteed free of specified risk materials including the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older; and the distal ileum (portion of the small intestine) of cattle of all ages.*" All bone meal sold in Canada probably complies with this regulation.

It's important to recognize that the requirement to use **organic alfalfa meal and pellets** if commercially available extends to blended fertilizers containing alfalfa. The same would be true with oil **seed meals and fertilizers containing oil seed meals**. An entry for oil seed meals was added to this section during the amendment process as an allowed input.

Clarification has been added to the **cannery wastes** origin and usage requirements saying that the source must be organically grown or composted as outlined under the "Composting feedstocks" entry.

Ethoxyquin is now clearly prohibited as a **fish-based soil amendment product** preservative. **Sulphuric acid** has been added so it can be used to adjust the pH of fish-based products, but it is identified as the least preferred chemical following; organic vinegar,

organic citric acid, and phosphoric acid.

Mined sulphate of potash magnesia, **langbeinite** has been added as allowed.

The **compost** entry has been divided into 4 categories: composting feedstocks; compost produced on the farm; compost obtained from off-farm sources; and compost tea.

Regarding **composting feedstocks**, clarification has been added to assure all **animals manures destined** to be composted comply with the source requirements laid out in paragraph 5.5.1 of CAN/CGSB-32.310 (the Principles). **Forestry plant and plant by-products** have also been added, as well as **soils and minerals** complying with this standard, are acceptable as composting feedstocks.

The most important **new composting feedstock requirement** pertaining to all other materials besides animal manures (remember animal manures must comply with 5.5.1 in 32.310) is the following. If there is chance that any non-manure compost feedstock maybe contaminated with prohibited materials, either don't use it or have test results verifying that the source is clean, or documentation that these contaminants will break down during composting. It is important to remember that no matter what the source the composting feedstock criteria must be satisfied somehow. For example, to the best of my knowledge most herbicides used at least in residential areas in Canada do breakdown during thermal composting (F.Y.I. quoting this article to your CB will not be sufficient due diligence). On the other hand, aminopyralid a commercial herbicide sold in Canada under the following brand names Restore, Milestone, and De-750 does not break down even when hot composted. The same is true for its relative Clopyralid found in many Canadian commercial products such as Eclipse, Lontrel, Curtail, Prowl, Ultimax, Flaxman, Transline, Prestige, Prevail, and Fieldstar.

I remember a few years ago south of the border in Washington State when clopyralid residue traces were found in commercial composts and causing "injury to non-target plants" (people's gardens etc.). Officials figured that the herbicide was getting into the landscape waste recycling stream, probably from clopyralid-treated grass clippings being used in the composting process. I am sure there have been similar problems north of the border, although none received as much press coverage as what hap-

pened in Washington. Picloram (brand name Tordan, Grazon) is another known herbicide with long lasting residues that don't breakdown even when hot composted. Supposedly the pesticide Diazinon doesn't breakdown well during the composting process either, another good reason we should be pleased Diazinon was phased out for non-agriculture use in both Canada and the USA by 2004. Diazinon is still available for agriculture use in both countries.

Clarifying additions were made to what cannot be used as a **composting feedstock** – any source fortified with substances not listed in the PSL, such as pulp and paper mills to which urea and phosphoric acid are commonly added are prohibited. Also leather by-products, and animals and animal by-products that are not guaranteed free of specified risk materials are prohibited, along with glossy paper, paper with coloured ink and waxed cardboard etc.

Beyond satisfying all the compost feedstock criteria, you have three options on how to handle **on-farm compost**. The material must either:

- 1) Reach a temperature of 55°C (130°F) for four consecutive days or more and be turned sufficiently to make sure the entire pile reaches this temperature for the minimum amount of time.
- 2) Meet Canadian Council of Ministers of the Environment (CCME) limits for acceptable levels (MPN/g total solids) of human pathogens. Currently those requirements are "fecal coliforms < 1000 MPN / g of total solids calculated on a dry weight basis, OR No *Salmonella* sp. with a detection level < 3 MPN/4g total solids calculated on a dry weight basis." See Table 1 in CCME's Guidelines for Compost Quality www.ccme.ca/assets/pdf/compostgdlns_1340_e.pdf
- 3) Or, treated as raw manure and abide the pre-harvest interval requirements outlined in 5.5.3.3 of CAN/CGSB 32.310.

Similarly, compost feedstocks used in **compost obtained from off-farm sources** must meet the same composting feedstock requirements as on-farm compost, plus it:



Photo: COABC

GREENBYTES...



Photo: Pine beetle-killed Lodgepole Pines. Public Domain Image

With the BC government's recent public warning about possible health risks from exposure to B.C. pine forests sprayed with arsenic based pesticides

between the mid 80's until 2004, organic growers need to practice sufficient due diligence if purchasing any type of pine derived product for use on-farm.

- 1) Must satisfy the CCME's Category `A' requirements for both trace contaminants and foreign matter. Refer to pages 16 and 17 in CCME's guide.
- 2) Cannot lead to a build up of heavy metals in the farm soil.
- 3) Must meet the same CCME's limits for acceptable levels (MPN/g total solids) of human pathogens as on-farm compost.

As before, all materials used for **compost tea** must comply with the requirements for each component in the standard, but criteria have been added for foliar applications of compost tea to reduce the human health risk. Therefore if compost tea is applied directly on edible parts of plants, the operator must substantiate that "best practices known to eliminate pathogens during the process have been used" or abide by the 90/120 day pre harvest requirement for raw manure applications as outlined in 5.5.3.3 of CAN/CGSB 32.310.

The entry for **plants and plant by-products** (hay, straw, leaves, crop residues) used as soil amendments has been modified to make it clearer that if treated with anything not listed in sections 6.4.1 and 6.6 of the PSL these sources can only be considered as compost feedstocks.

Processed (mechanically or physically treated) **animal manure products** are allowed as long as any substances added comply with this standard; secondly the manure priority in paragraph 5.5.1 of 32.310 has been satisfied and lastly the product free of human pathogens. If not considered safe, it should be applied as if it is raw manure (5.5.2.5 of CAN/CGSB 32.310).

The origin and usage criteria for **worm castings** (also called vermicompost, worm compost, vermicast, worm humus, or worm manure) has been clarified to make it clearer that the feedstocks must meet the new compost feedstock criteria no matter if they are produced on or off-farm.

4.3 – Crop Production Aids and Materials

This section may seem like it is saying all of these products are allowed, but that is not the case. In fact, there has to be a brand name product registered in Canada for the particular use you want and that commercial product must also meet all other criteria laid out in this standard. Therefore keep in mind this section is a list of generic products that would be allowed for, but only if there is an acceptable and compliant registered product.

Notable amendments to this section include:

Non-synthetic ethyl alcohols have been included as solvents to extract botanical insecticides.

Both **natural chelates** and **synthetic chelates** must now be specified in the PSL to be allowed. What is the difference between a natural and a synthetic chelate? Soil humic complexes and other organic soil acids that have not been chemically altered would be examples of naturally occurring chelates. If chemically treated, they would be classified as synthetic chelates. Lignin sulphonate, a by-product from the chemical pulp and paper industry is also an example of a synthetic chelate. From what I have read, supposedly natural chelates are preferred as they have increased bioavailability versus their synthetic counterparts.

If sanitation and trapping are not effectively handling a rodent problem, **cholecalciferol (vitamin D3)** can be used (as was in Book 2 ver 7) outdoors and inside greenhouses. Unfortunately right now in Canada there are no PMRA registered products containing vitamin D3.



Photo: COABC

One significant addition to this section is an entry for **formulants** which are materials commonly added to pest control products to improve their sprayability, solubility, spreadability or stability. Operators will need to confirm that all formulants present in any product that comes into direct contact with a crop is either on List 4A or 4B of the Pest Management Regulatory Agency (PMRA) Regulatory Note REG2007-04 or are non-synthetic. Formulants classified as List 3 in PMRA Regulatory Note REG2007-04 may be used with passive pheromone dispensers. Formulants classified as List 1 or List 2 in PMRA Regulatory Note REG2007-04 are prohibited. REG2007-04 can be found at <http://www.pmlra-arla.gc.ca/english/pdf/reg/reg2007-04-e.pdf>

Hydrated lime now can be used as a plant disease control product.

Both **synthetic and non-synthetic pheromones** (as was in Book 2 ver 7) and other semiochemicals may be used as pest control.

Both **pyrethrum** and **rotenone** can be used if the commercial product contains only acceptable formulants and the **botanical pesticides** criteria as outlined in this section has also be satisfied. December 31, 2008 was the last day for sales of all domestic and commercial non-piscicide (non-fish killing) rotenone products in Canada. Last day for legal use of stocked inventory is Dec 31, 2012.

This may also be the time to point out that the PSL includes generic material (e.g. neem and rotenone) that aren't registered for use in Canada. This was done purposely to assure that imported food and food products from jurisdictions where the use is legal could be traded/marked and used in Canada.

Any item in section 4.3 that is appropriate can be used as a **seed treatment** along with microbial products, kelp, yucca, gypsum, clays, and botanicals.

The origin and usage note for **lime sulphur** (calcium polysulphide) has been simplified from the previous version. Lime sulphur is now "allowed as fungicide, insecticide and acaricide (mite control) on plants."

Latex paint which has been commonly used as a tree sealant and to offset southwest injury protection has been deleted to align with the USDA National Organic Program.

Regarding all **cleaners, disinfectants** listings previously in this section – each entry has been reviewed and if retained has been moved to section 7 - Permitted Substances Lists for Cleaners, Disinfectants and Sanitizers of the PSL [See chart

on facing page]. Some uses have been restricted, be sure to review this section.

5 – PERMITTED SUBSTANCES LISTS FOR LIVESTOCK PRODUCTION

5.1 - Classification

Livestock product substances are now categorized into a) Feed, Feed Additives and Feed Supplements and b) Health Care Products and Production Aids. Refer to section 7 for cleaning product listings.

5.2 – Feed, Feed Additives and Feed Supplements

Organic **milk replacer** must be used when commercially available and if non-organic milk replacer is used, not only does it have to be antibiotic and animal fat free, but it cannot contain any by-products.



Photo: COABC

5.3 – Health Care Products and Production Aids (Livestock)

Only 3% pharmaceutical grade **hydrogen peroxide** can be used as an external disinfectant, while a 35-50% food grade source must be used for livestock drinking water (dilution rates are listed in the guidance document).

The **chlorohexidine** entry was clarified to make it clear that it is only allowed for use as a post-milking teat dip (no pre-milking use allowed). The **mineral oil** origin and use entry was simplified to “for external use only”.

The **oxytocin** origin and usage entry has been expanded to make it clearer that meat from treated animals will not lose organic status, as long as the withdrawal time requirement specified in par. 6.7.6.d [editorial note: current version shows 6.7.6.c this needs to be corrected] of CAN/CGSB 32.310 is adhered to and the oxytocin is being used for post parturition therapeutic use only (e.g. retained placenta and failure to let down milk).

SUMMARY TABLE for PSL 7.3 & 7.4 (Cleaners, Disinfectants and Sanitizers)

If You Use These Types Of Cleaning Products	Type of Contact	Is An Intermediary Step Necessary?
<ul style="list-style-type: none"> - Non-synthetic acetic acid - Vinegar (organic or non) - Citric acid - Hydrogen peroxide 	In direct contact with organic food	No – see PSL 7.3
All the above plus: <ul style="list-style-type: none"> - Synthetic acetic acid - Isopropyl alcohol - Ascorbic acid - Peracetic acid - Potassium bicarbonate - Sodium bicarbonate 	In contact with food surfaces before food comes into contact with the food surface	No – see PSL 7.3
<ul style="list-style-type: none"> - Bleach (chlorine) - Caustic potash (potassium hydroxide) - Detergents - Iodine - Lime - Lye (sodium hydroxide) - Phosphoric acid - Potassium permanganate - Soaps - Soap-based algaecide demossers - Sodium borate - Surfactants - Wetting agents 	In contact with organic food surfaces	Yes – see PSL 7.4

6 – PERMITTED SUBSTANCES LISTS FOR PROCESSING

As mentioned elsewhere, cleaning products have been moved into Section 7, so the title of this section was modified to reflect that change.

6.3 – Non-organic Ingredients Classified as Food Additives

Both **sulphurous acid** and **potassium metabisulphite** can be used when making certified organic fruit-based alcoholic beverages. The maximum allowable levels are outlined in the standard and vary with the residual sugar levels. Potassium metabisulphite is permitted as an alternative to sulphur wicks and bottled SO₂ as it is safer, more readily available, and easier to handle in smaller quantities.

The **calcium chloride** origin and usage note was clarified to make it clear it can be used in “milk products/fat products /fruits and vegetables/soybean products.”

The origin and usage restriction for sodium hydroxide has been deleted.

6.4 – Non-organic Ingredients Not Classified as Food Additives

Natural **potassium iodide** is now permitted when legally required. A notation was added to the **salt (sodium chloride)** origin and usage requiring that “only substances listed in table 6.4.1 or 6.4.2 may be added to mined or sea salt.”

There is no longer any restrictive annotation for **oxygen**, while the annotation for **nitrogen** has been changed to require the use of food-grade quality.

6.6 – Processing Aids

Bentonite and cellulose have been added as filtering aids; the cellulose has to be non-chlorine bleached.

Rice hulls, powdered milk and **egg white** were removed. This means only organic forms of these three items are acceptable.

Calcium hydroxide (Lime) has been added, with no restrictions.

Activated charcoal is now clearly prohibited for use in processing maple syrup.

The **casein** annotation was modified making it mandatory to use organic casein if it is commercially available.

Gelatine (gelatin) can now be used as long as guaranteed free of specified risk materials, and the organic form used when commercially available.

There is no longer any restrictive annotation for **oxygen**, while the annotation for **nitrogen** has been changed to require the use of food-grade quality.

A new addition to the Processing Aid section is **vegetable oil** which can be used “as a sprayed-on greasing agent.” There is one caveat – the source could not have been manufactured using synthetic solvents.

6.7 – Pest Control Substances

Ammonium carbonate can be used as an attractant in insect traps while **boric acid** can be used for structural pest control (e.g. ants) if there is no direct contact with organic food or crops.

Usage of **cholecalciferol (vitamin D3)** as a bait has been restricted to the exterior of food processing and storage facilities. And as mentioned in section 4.3, there are currently no PMRA registered rodenti-

cides containing vitamin D3 available.

Neem oil, an extract from *Azadirachta indica*, a tropical shrubby tree, has been added to the PSL but as there are no registered PMRA products containing neem it cannot be used within Canada. Neem has been added to the PSL to allow ingredients and products produced in other countries where it is legal to use neem to be imported and used in Canada.

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

For complete insight to the revised cleaning requirements, be sure to read the Cleaning portion of the ‘Principles Amendments with Impacts’ article on Page 12 as well as the Summary Table on Page 17.

7.3 – Food-grade cleaners, disinfectants and sanitizers that are allowed without a mandatory removal event

Potassium bicarbonate has been added as a non-rinse material but for equipment only.

7.4 – Cleaners, disinfectants and sanitizers that shall be removed from surfaces in contact with organic food

The entry for **bleach** was slightly modified to make it clear that any chlorinated water applied to crops or food from any source cannot exceed the legal free chlorine levels for safe drinking water. For BC, that level is 0.2 mg/L.

A **soap** listing was added and the origin and usage annotation clearly outlines what are acceptable soaps as products consisting of fatty acids derived from animal or vegetable oils. Similarly, an entry for **surfactants** was added to make sure that all surfactants used are biodegradable (same requirement as detergents). 



Photo: COABC