by Michael Cant and
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Changes from the CCME

National guidelines for compost quality

On October 12, 2005 at the combined Compost Council of Canada and Recycling Council of Alberta conference, a new edition of the *Guidelines for Compost Quality* was released by the Canadian Council of the Ministers of the Environment (CCME). This replaced the original 1996 edition.

The guidelines serve as the suggested national standard for compost quality regulations. It is the decision of each of the territories and provinces whether they integrate these standards into the composting regulations in their jurisdiction.

The new guidelines were the results of an 18 month review by the CCME to assess the need for adjustments to the trace element levels, foreign matter and requirements for maturity and pathogen testing. Adjustments were made to two Category A metals: specifically, copper was raised from 100 to 400 mg/kg and zinc was raised from 500 to 700 mg/kg. These changes allow greater flexibility to compost a variety of different organic feedstocks. The →

Table 1
Concentrations of Trace Elements in Compost and Cumulative Trace Element Additions to Soil

	Category A	Category B	
Trace Elements* **	**Maximum Concentration Within Product (mg/kg dry weight)**	**Maximum Concentration Within Product* (mg/kg dry weight)**	**Maximum Cumulative Additions to Soil* (kg/ha)**
Essential or Beneficial to Plants or Animals			
Arsenic (As)	13	75	15
Cobalt (Co)	34	150	30
Chromium (Cr)	210	**	**
Copper (Cu)	400	**	**
Molybdenum (Mo)	5	20	4
Nickel (Ni)	62	180	36
Selenium (Se)	2	14	2.8
Zinc (Zn)	700	1,850	370
Other			
Cadmium (Cd)	3	20	4
Mercury (Hg)	0.8	5	1
Lead (Pb)	150	500	100

* These concentrations are the existing standards under Canadian Food Inspection Agency's Standards for metals in Fertilizers and Supplements, September 1997 (Trade Memorandum T-4-93).

** Limits for copper and chromium are not established in the Trade memorandum. Calculated in the same manner as limits for the other nine elements, the trace element additions to soil for chromium and copper would be: chromium = 210 kg/ha and copper = 150 kg/ha for the trace element concnetrations within the compost product, chromium = 1,060 mg/kg and copper = 757 mg/kg. Detals of these calcumations are in the "Support document for Compost Quality Criteria (National Standard of Canada CAN/BN1 0413-200, Canadian Council of Ministers of the Environment (CCME) guidelines and Agriculture and Agri-Food Canada (AAFC) Criteria".

*** Concentrations of other elements may eventually be regulated in certain provinces o accommodate regional and national concerns.

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new trace element concentrations for Category A (unrestricted use) and Category B (restricted use) are shown in Table 1.

The most significant change is the increase in copper from 100mg/kg to 400 mg/kg. The rationale given for the rise in the copper standard included:

- copper is a micronutrient;
- the proposed limit is approximately four times stricter than the American criteria for "exceptional quality" municipal biosolids (and biosolids compost) that may be distributed without restriction (USEPA, 1995);
- a limit of 400mg/kg is used in the British Columbia Organic Matter Recycling (BC OMRR) for Class A compost (best quality); and
- many composts, especially hog manure and biosolids composts, cannot meet the current criteria. (Source: *Impacts of modifying the copper limit of the Canadian Compost Standard,* December 2003, Marc Hebert and Elisabeth Groenveld, Ministere de l'Environment du Quebec.)

In summary, the copper and zinc standards were increased to allow feedstocks like manures and biosolids to be composted to an unrestricted standard.

Annex A of the new guideline provides an explanation of the "no net degradation" and the "best achievable approach" concepts that were considered for the determination of the maximum acceptable trace elements in Category A. The CCME chose the best achievable approach concept when determining standards.

Alberta, Saskatchewan, Manitoba, Prince Edward Island, Nova Scotia, Newfoundland and Labrador, New Brunswick, Northwest Territories, and Nunavut adopted the 1996 CCME guidelines for compost quality. British Columbia adopted new compost regulations in 2002 (Organic Matter Recycling Regulation). Quebec adopted the *Guidelines for the Beneficial Use of Fertilizing Residuals* in 2004. In Ontario the *Interim Guidelines for the Beneficial Use of Aerobic Compost in Ontario* (1991) and Regulation 101/94 *A*

Continues on page 41 →

Current Ontario Compost Standards

Composting in Ontario is regulated through the *1991 Interim Guidelines for the Production and Use of Aerobic Compost*. In addition, Regulation 101/94 outlines standards for leaf and yard waste composting. The guidelines establish criteria for metals pathogens, foreign matter and maturity for a compost product before it can be used in an unrestricted use. The metal criteria in the 1991 guidelines were developed based on the objective of not significantly affecting the background soil level when used in an unrestricted manner. In May 2004, the Ontario Ministry of the Environment proposed to harmonize the metal criteria for compost with the 1996 CCME guidelines. The 1991 Interim Guidelines metal levels and 1996 CCME criteria are shown in Table 2.

TABLE 2

Compost Standards — Trace Elements

Trace Element	1991 Interim Guidelines	1996 CCME A
Arsenic	10	13
Cobalt	25	34
Chromium	50	210
Copper	60	100
Molybdenum	2	5
Nickel	60	62
Selenium	2	2
Zinc	500	500
Cadmium	3	3
Mercury	0.15	0.8
Lead	150	150

In November 2004, the environment ministry adopted the 1996 CCME Class A (unrestricted use) concentrations for the province. In the consultation period on the standards change, the ministry received 43 submissions from stakeholders. In the EBR posting, the following comments were summarized:

- many respondents also recommended that the Province adopt Category B of the CCME standard for heavy metals;
- this category is not fully defined by the CCME. It allows for more permissive metal concentrations and has been classified by the CCME as "restricted use";
- the CCME suggests that provinces or territories develop and exercise some control over compost that may fall into this category; and

the province may consider the development of a secondary category for compost with restricted use applications in the future. With the release of the *60% Waste Diversion Discussion Paper* in June 2004 a significant amount of consultation with stakeholders in the composting industry has been undertaken by the ministry. One of the key points brought up by stakeholders is the need to develop more comprehensive compost guidelines and bring the Ontario compost standards in line with the CCME guidelines.

In Ontario, the approvals process for obtaining a C of A for a composting facility is generally accepted to be slow and inconsistent. The main reasons for this include: outdated guidance documents and approvals and district office staff with insufficient knowledge of the composting process and accepted composting practices.

The unpublished "Draft" *Guidelines for Aerobic Facilities and Compost Use* (May, 1998) (Draft Guidelines 1998) should be used as a starting point and updated. Ontario Regulation 101/94 and the Standardized Approval Regulation (SAR) proposed in the 1996 ministry consultation paper *Responsive Environmental Protection: A Consultation Paper* can also be used in this update.

Ultimately what is needed is additional clarity for proponents wishing to apply for a Certificate of Approval for a composting facility and also to provide some operational guidance.

With the recent release of the new CCME guidelines, the province needs to once again look at revising the compost standards. In this evaluation, serious consideration has to be given to adopting both the Class A and B standards to allow the Ontario compost industry to compete with other provinces and allow alternative organic feedstocks into the mix.

Continued from page 24

Guide to Approvals for Recycling Sites, Leaf and Yard Waste Composting Sites and Compost Use regulate compost quality.

With the release of the new CCME guidelines each jurisdiction will have to decide if they will adopt the new standards. British Columbia and Quebec have recently adopted new standards and it is our understanding that New Brunswick has initiated a process to review the new CCME guidelines.

Ontario recently adopted the 1996 CCME A metal standards in November 2004 but suggested that future revisions could be considered. (*See sidebar above*).

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