

Users are advised to consult the Canadian Environmental Quality Guidelines introductory text, factsheet, and/or protocols for specific information and implementation guidance pertaining to each environmental quality guideline.

## Cadmium

**CASRN:** 7440439

**Parameter 1:** INORGANIC

**Parameter 3:** Metals

### Water Quality for the Protection of Aquatic Life

Further documentation on these guidelines can be found in the Canadian Environment Quality Guidelines.

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#### Freshwater

Short Term Concentration ( $\mu\text{g/L}$ )

Equation

The short-term benchmark concentration of  $1.0 \mu\text{g}\cdot\text{L}^{-1}$  is for waters of  $50 \text{ mg CaCO}_3\cdot\text{L}^{-1}$  hardness.

The short-term benchmark for cadmium is related to water hardness (as  $\text{CaCO}_3$ ):

When the water hardness is 0 to  $< 5.3 \text{ mg/L}$ , the short-term benchmark is  $0.11 \mu\text{g/L}$

At hardness  $\geq 5.3$  to  $\leq 360 \text{ mg/L}$ , the short-term benchmark is calculated using this equation (see calculator below)

$$\text{Short-term benchmark } (\mu\text{g/L}) = 10^{(1.016(\log[\text{hardness}]) - 1.71)}$$

At hardness  $> 360 \text{ mg/L}$ , the short-term benchmark is  $7.7 \mu\text{g/L}$

**Enter water hardness here:**

$\text{mg/L CaCO}_3$

**Calculated cadmium short-term benchmark:**

$\mu\text{g/L}$

Long Term Concentration (µg/L)	Equation
The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L <sup>-1</sup> is for waters of 50 mg CaCO <sub>3</sub> ·L <sup>-1</sup> hardness.	
The CWQG for cadmium is related to water hardness (as CaCO <sub>3</sub> ):	
When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 µg/L	
At hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation (see calculator below)	
$CWQG (\mu g/L) = 10^{(0.83(\log[hardness]) - 2.46)}$	
At hardness > 280 mg/L, the CWQG is 0.37 µg/L	
<b>Enter water hardness here:</b> <input type="text"/> mg/L CaCO <sub>3</sub>	
<b>Calculated cadmium guideline:</b> <input type="text"/> µg/L	
Date	2014
<b>Marine</b>	
Short Term Concentration (µg/L)	NRG
Long Term Concentration (µg/L)	0.12
This value was not assessed as part of the present update; value is from CCME (1996).	
Date	2014
<b>Water Quality for the Protection of Agriculture</b>	
Further documentation on these guidelines can be found in the Canadian Environment Quality Guidelines.	<a href="#">Download</a> <a href="#">Factsheet</a>
<b>Irrigation</b>	
Concentration (µg/L)	5.1
Guideline values slightly modified from CCREM 1987 + Appendixes due to re-evaluation of the significant figures.	
Guideline is crop specific (see fact sheet)	
Date	1996

## Livestock

Concentration (µg/L)	80
Date	1996

## Sediment Quality for the Protection of Aquatic Life

Further documentation on these guidelines can be found in the Canadian Environment Quality Guidelines.

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## Freshwater

Concentration (µg/kg dry weight) - ISQG	600
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Guideline	% ≤ ISQG	ISQG < % < PEL	ISQG % ≥ PEL
Cadmium	11	12	47

Concentration (µg/kg dry weight) - PEL	3500
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Guideline	% ≤ ISQG	ISQG < % < PEL	ISQG % ≥ PEL
Cadmium	11	12	47

Date	1997
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## Marine

Concentration (µg/kg dry weight) - ISQG	700
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Guideline	% ≤ ISQG	ISQG < % < PEL	ISQG % ≥ PEL
Cadmium	6	20	71

Concentration (µg/kg dry weight) - PEL	4200
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Guideline	% ≤ ISQG	ISQG < % < PEL	ISQG % ≥ PEL
Cadmium	6	20	71

Date	1997
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## Soil Quality for the Protection of Environmental and Human Health

Further documentation on these guidelines can be found in the Canadian Environment Quality Guidelines.

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Concentration (mg/kg dry weight) - Agricultural	1.4
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Data are sufficient and adequate to calculate a Soil Quality Guideline for Human Health (SQG<sub>HH</sub>) and a Soil Quality Guideline for Environmental Health (SQG<sub>E</sub>). Therefore the soil quality guideline is the lower of the two and represents a fully integrated de novo guideline for this land use, derived in accordance with the soil protocol (CCME 1996;2006). The corresponding interim soil quality criterion (CCME 1991) is superseded by the soil quality guideline.

For guidelines derived prior to 2004, differentiation between soil texture (coarse/fine) is not applicable.

Concentration (mg/kg dry weight) - Residential / parkland	10
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The soil-plant-human pathway was not considered in the guideline derivation. If produce gardens are present or planned, a site-specific objective must be derived to take into account the bioaccumulation potential (e.g., adopt the agricultural guideline as objective). The off-site migration check should be recalculated accordingly.

For guidelines derived prior to 2004, differentiation between soil texture (coarse/fine) is not

applicable.	
Concentration (mg/kg dry weight) - Commercial	22
Data are sufficient and adequate to calculate a Soil Quality Guideline for Human Health (SQG <sub>HH</sub> ) and a Soil Quality Guideline for Environmental Health (SQG <sub>E</sub> ). Therefore the soil quality guideline is the lower of the two and represents a fully integrated de novo guideline for this land use, derived in accordance with the soil protocol (CCME 1996;2006). The corresponding interim soil quality criterion (CCME 1991) is superseded by the soil quality guideline.	
For guidelines derived prior to 2004, differentiation between soil texture (coarse/fine) is not applicable.	
Concentration (mg/kg dry weight) - Industrial	22
Data are sufficient and adequate to calculate a Soil Quality Guideline for Human Health (SQG <sub>HH</sub> ) and a Soil Quality Guideline for Environmental Health (SQG <sub>E</sub> ). Therefore the soil quality guideline is the lower of the two and represents a fully integrated de novo guideline for this land use, derived in accordance with the soil protocol (CCME 1996;2006). The corresponding interim soil quality criterion (CCME 1991) is superseded by the soil quality guideline.	
For guidelines derived prior to 2004, differentiation between soil texture (coarse/fine) is not applicable.	
Date	1999
Tissue Residue Quality for the Protection of Wildlife Consumer of Aquatic Biota	
Concentration (µg/kg diet wet weight)	No data
Date	No data