

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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Factsheet](#)

Freshwater

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

1.0

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 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 ≥ 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:

mg/L CaCO_3

Calculated cadmium short-term benchmark:

$\mu\text{g/L}$

Long Term Concentration (µg/L) 0.09

The CWQG for cadmium (i.e. long-term guideline) of 0.09 µg·L⁻¹ is for waters of 50 mg CaCO₃·L⁻¹ hardness.

The CWQG for cadmium is related to water hardness (as CaCO₃):

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)

$$CWQG (\mu\text{g/L}) = 10^{0.83(\log[\text{hardness}]) - 2.46}$$

At hardness > 280 mg/L, the CWQG is 0.37 µg/L

Enter water hardness here:

mg/L CaCO₃

Calculated cadmium guideline:

µg/L

Date 2014

Marine

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

Water Quality for the Protection of Agriculture

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

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Irrigation

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 ($\mu\text{g/L}$)	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 ($\mu\text{g/kg}$ dry weight) - ISQG 600

Guideline	% \leq ISQG	ISQG < % < PEL	ISQG % \geq PEL
Cadmium	11	12	47

Concentration ($\mu\text{g/kg}$ dry weight) - PEL 3500

Guideline	% \leq ISQG	ISQG < % < PEL	ISQG % \geq PEL
Cadmium	11	12	47

Date 1997

Marine

Concentration ($\mu\text{g/kg}$ dry weight) - ISQG 700

Guideline	% \leq ISQG	ISQG < % < PEL	ISQG % \geq PEL
Cadmium	6	20	71

Concentration ($\mu\text{g/kg}$ dry weight) - PEL 4200

Guideline	% \leq ISQG	ISQG < % < PEL	ISQG % \geq PEL
Cadmium	6	20	71

Date 1997

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

Data are sufficient and adequate to calculate a Soil Quality Guideline for Human Health (SQG_{HH}) and a Soil Quality Guideline for Environmental Health (SQG_{E}). 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

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
<p>Data are sufficient and adequate to calculate a Soil Quality Guideline for Human Health (SQG_{HH}) and a Soil Quality Guideline for Environmental Health (SQG_E). 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.</p> <p>For guidelines derived prior to 2004, differentiation between soil texture (coarse/fine) is not applicable.</p>	
Concentration (mg/kg dry weight) - Industrial	22
<p>Data are sufficient and adequate to calculate a Soil Quality Guideline for Human Health (SQG_{HH}) and a Soil Quality Guideline for Environmental Health (SQG_E). 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.</p> <p>For guidelines derived prior to 2004, differentiation between soil texture (coarse/fine) is not applicable.</p>	
Date	1999
Tissue Residue Quality for the Protection of Wildlife Consumer of Aquatic Biota	
Concentration (µg/kg diet wet weight)	<i>No data</i>
Date	<i>No data</i>