Canada

Toxin	Products	Action level	References
Domoic Acid (Amnesic Shellfish Poisoning:ASP)	Molluscan shellfish (edible portion)	20 ppm	Canada Food Inspection Agency, Fish Products Standards and Methods Manual, Appendix 3 Canadian Guidelines for Chemical Contaminants and Toxins in Fish and Fish Products, Date modified 2014-08-11
Saxitoxins (Paralytic Shellfish Poisoning:PSP)	Molluscan shellfish (edible portion)	0.8 ppm	
Okadaic Acid (OA) + DTX1 + DTX2 + OA esters + DTX1 esters + DTX2 esters (Diarrhetic Shellfish Poisoning:DSP)	Molluscan shellfish (edible portion)	0.2 ppm (interim)	
Pectenotoxins: PTX-1, PTX-2, PTX-3, PTX-4, PTX-6 and PTX-11	Molluscan shellfish (edible portion)	0.2 ppm	
Histamine	Enzyme ripened products (e.g. anchovy, anchovy paste, fish sauce)	200 ppm	
	All other scombroid fish products (e.g. canned or fresh or frozen tuna, mackerel, mahi-mahi)	100 ppm	

Canada

Antibiotic, Drug and Chemical Residue	Use status	Products	Action level *	References
Triphenylmethan Dyes: Malachite Green **a** or Leuco-Malachite Green	Not accepted to be used	Aquaculture fish and crustaceans	MG = 0.5 ppb or LMG = 0.5 ppb	- Interim Guidelines for The Present of MG and LMG in Aquaculture Fish Products established by Health Canada and published in CFIA Industry Notice of March 29,2006 - Canada Food Inspection Agency, Fish Products Standards and Methods Manual, Appendix 1(A)CFIA Aquaculture Therapeutant Residue Monitoring List, Date modified 2014-08-11
Gentian Violet or Leucogentian Violet	Not accepted to be used	Aquaculture fish and crustaceans	GV = 0.5 ppb and/or LGV = 0.5 ppb (sum GV&LGV < 1.0 ppb)	
Amphenicols : Florfenicol	Approved	Salmonids (muscle)	800 ppb **b**	Canada Food Inspection Agency, Fish Products Standards and Methods Manual, Appendix 1 (A)CFIA Aquaculture Therapeutant Residue Monitoring List, Date modified 2014-08-11
Chloramphenicol	Banned	Aquaculture fish and crustaceans	DTC	
Thiamphenicol	Not accepted to be used			
Fluoroquinolones: Ciprofloxacin	Not accepted to be used	Aquaculture fish and crustaceans	1.0 ppb **c**	
Danofloxacin				
Enrofloxacin				
Sarafloxacin				

Canada

Antibiotic, Drug and Chemical Residue	Use status	Products	Action level *	References
Avermectins : Emamectin Benzoate	Approved	Salmonids (muscle)	100 ppb AMRL	- do -
Ivermectin	Not accepted to be used	Aquaculture fish and crustaceans	DTC	
Macrolides : Erythromycin	EDR	Fish, Crustaceans (muscle)	30 ppb d	
Benzoylureas : Teflubenzuron e	Approved	Salmonids (muscle)	300 ppb	
Teflubenzuron e		Salmonids(skin)	3,200 ppb	
Nitrofurans : Furaltadone	Banned	Aquaculture fish and crustaceans	DTC	
Furazolidone				
Nitrofurantoin				
Nitrofurazone				
Quinolones : Flumequine	Not accepted to be used	Aquaculture fish and crustaceans	DTC	
Oxolinic Acid				
Tetracyclines : Oxytetracycline	Approved	Salmonids, Lobsters (muscle)	200 ppb	
Chlorotetracycline	Not accepted to be used	Aquaculture fish and crustaceans	DTC	
Tetracycline				

Canada

Antibiotic, Drug and Chemical Residue	Use status	Products	Action level *	References
Sulfonamides : Ormetoprim	Approved	Salmonids (edible tissue)	100 ppb AMRL	- do -
Sulfadiazine			100 ppb	
Sulfadimethoxine			100 ppb AMRL	
Trimethoprim			100 ppb	
Sulfacetamide	Not accepted to be used	Aquaculture fish and crustaceans	DTC	
Sulfachloropyridazine				
Sulfadoxine				
Sulfaguanadine				
Sulfamerazine				
Sulfamethazine				
Sulfamethiazole				
Sulfamethoxazole				
Sulfamethoxypridazine				
Sulfamonomethoxine				
Sulfamoxole				
Sulfanilamide				
Sulfapyridine				
Sulfaquinoxaline				
Sulfathiazole				
Sulfisoxazole				
Tricacine Methane Sulfonate	Approved	Salmonids (edible tissue)	0.01 mg/kg	

Canada

***Action level column :** For therapeutants where a predetermined guideline has been established by Health Canada (such as Maximum Residue Limits (MRLs), Administrative Maximum Residue Limits (AMRLs), interim guidelines, minimum performance Limit of Quanitification, etc.), the analytical laboratory must use a validated method that is capable of providing an accurate result so that an assessment can be made on whether the product meets the applicable guideline. The residue limits for these therapeutants in the sample are identified in the "Action Level" column.

DTC - Detected above the reporting limit

EDR – Emergency drug release: Program administered by Health Canada – Veterinary drugs directorate.

AMRL - Administrative Maximum Residue Limit: The definition for AMRL and MRL are basically the same except AMRL is awaiting completion of the legal process for publishing in *Food and Drug Regulations.*

Approved - Veterinary drugs authorized for sale by Health Canada for use in food-producing aquatic animals

Banned drugs are those drugs which are prohibited for sale and use on animals (including fish) that produce food or that are intended to be consumed as food as stipulated in the *Food and Drug Regulations*. Scientific evidence has demonstrated that exposure to these substances at any level could pose a risk to human health.

a If products contain Malachite Green or Leuco-Malachite Green > 0.5 ppb to ≤ 1.00 ppb, gathering of information will be required to determine deliberate use in Canada.

b A lot of fish will be considered reject when the sum of florfenicol (parent drug) and florfenicol amine (metabolite) detected in the sample exceeds the florfenicol MRL.

c As a minimum performance level of the laboratories testing for fluoroquinolones, the laboratory must have a limit of quantification (LOQ) of at least 1.0 ng/g for fluoroquinolones.

d Interim action level set by Health Canada.

e The monitoring of teflubenzuron in aquaculture products is under review and is not applicable at this time.

Canada

Food Additive [a] Not permitted for use	**Products**	**Background level [b]**	**References**
Nitrites	All fish and fish products (except marine mammal meat [c])	15 ppm (see note 2)	Canada Food Inspection Agency, Fish Products Standards and Methods Manual, Appendix 3 Canadian Guidelines for Chemical Contaminants and Toxins in Fish and Fish Products, Date modified 2014-08-11
Nitrates	All fish and fish products	15 ppm (see note 2)	
Sulphites [d]	Clams (raw and canned)	10 ppm	
Phosphates [e]	Shrimp (frozen, raw, cooked and canned)	1.60 %	
	Scallops (raw)	1.47 %	
	Frozen fish fillets, frozen minced fish, canned seafood	1.37 %	
	Crab (frozen, raw, cooked and canned)	1.70 %	
	Lobster (frozen, raw, cooked and canned)	1.47 %	
	Surf clams (frozen, raw, cooked)	1.00 %	
	A blend of prepared fish and prepared meat	1.37 %	
	Squid	1.10 %	

[a] The compounds listed in this table are food additives; however some background levels may occur naturally in some foods.

[b] When the additive **is not** permitted, then the action level is the background level or detection limit; when the additive **is** permitted, then the action level is the background level or detection limit **plus** the permitted amount.

[c] Marine mammals, including seals are included in the definition of "fish" as per the Canadian Food and Drug Regulations. Sodium nitrite is permitted in marine mammal meats at the maximum level of 200 ppm.

[d] Calculated as sulphur dioxide.

[e] Calculated as sodium phosphate, dibasic.

Canada

Note:

1. If a processor can provide reliable data for naturally occurring background levels that are higher than those shown above, this may be considered before product action is taken.
2. Some herbs, including parsley, contain high levels of naturally occurring nitrates. This has to be considered when nitrates are detected in fish products containing herbs as an ingredient.

Canada

Food Additive Permitted for use [a]	Products	Maximum Level of Use	References
calcium disodium ethylenediamine-tetraacetate (EDTA)	Clams, Canned cooked	340 ppm	Canada food inspection agency, fish and seafood, list of permitted additives in fish and fish products, Date modified 2009-11-16
	Crab meat, Canned	275 ppm	
	Lobster, Canned	275 ppm	
	Salmon, Canned	275 ppm	
	Sea snails [b], Canned	300 ppm	
	Shrimp, Canned	250 ppm	
	Tuna, Canned	250 ppm	
	Tuna, Flaked, Canned	250 ppm	
Sorbic acid	Fish paste	1,000 ppm	
	Salted fish	1,000 ppm	
	Smoked fish	1,000 ppm	
Benzoic acid	Caviar	1,000 ppm	
	Crustaceans pickled spiced and marinated	1,000 ppm	
	Finfish, pickled spiced and marinated	1,000 ppm	
	Fish roe, salted	1,000 ppm	
	Molluscs, pickled spiced and marinated	1,000 ppm	
Potassium sorbate	Fish paste	1,000 ppm	
	Salted Fish	1,000 ppm	
	Smoked fish	1,000 ppm	
Sodium benzoate [c]	Caviar	1,000 ppm	
	Crustaceans pickled spiced and marinated	1,000 ppm	

Canada

Food Additive Permitted for use [a]	Products	Maximum Level of Use	References
Sodium benzoate [c] (continued)	Finfish, Pickled spiced and marinated	1,000 ppm	- do -
	Fish roe	1,000 ppm	
	Molluscs, Pickled spiced and marinated	1,000 ppm	

[a] Other food additive (permitted for used) standards can be found at http://active.inspection.gc.ca/eng/anima/fispoi/product/additi/fispoiadd_dbe.asp

[b] The following animals in the class Gastropoda are also considered marine snails: winkles, whelks, limpets, nudibranchs and abalone, and when canned may contain Calcium Disodium EDTA up to the level permitted in sea snails.

[c] Calculated as Benzoic Acid

Parameters	Products	Standards	References
Water activity (a_w)	Pasteurized products kept at room temperature : oyster sauce, other fish sauce	< 0.94	Canadian Inspection Agency-Guide-Process Control Technical Information, Date Modified : 2014-04-23
pH	Pasteurized products kept at room temperature : oyster sauce, other fish sauce	<4.6	

Canada

Contaminants	Products	Action level [a]	References
Mercury	All fish products (Except Those in below)	0.5 ppm	Canada Food Inspection Agency, Fish Products Standards and Methods Manual, Appendix 3 Canadian Guidelines for Chemical Contaminants and Toxins in Fish and Fish Products, Date modified 2014-08-11
	Swordfish, shark, fresh and frozen tuna, escolar, orange roughy and marlin	1.0 ppm	
Lead	Fish protein concentrate	0.5 ppm	
Arsenic	Fish protein concentrate	3.5 ppm	
Fluoride	Fish protein concentrate	150 ppm	
2,3,7,8 TCDD (Dioxin)	All fish products	20 ppt *under review*	
DDT and metabolites (DDD and DDE)	All fish products	5.0 ppm	
PCB	All fish products	2.0 ppm *under review*	
Piperonyl butoxide	Dried Cod	1.0 ppm	
Other agricultural chemicals or their derivatives	All fish products	0.1 ppm	

[a] Based on contaminants level of edible weight