

## PROFICIENCY TESTING PROVIDER (PTP) ACCREDITATION PROGRAM

### Scope of Accreditation

<b>Legal Name of Accredited Laboratory:</b>	<b>Centre d'expertise en analyse environnementale du Québec</b>
Location Name or Operating as (if applicable):	Direction de l'accréditation et de la qualité
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<b>SCC File Number:</b>	15739
<b>Provider:</b>	BNQ-EL
<b>Provider File Number:</b>	64425-1
<b>Accreditation Standard(s):</b>	ISO/IEC 17043:2010
<b>Proficiency Testing Scheme/Field of Testing:</b>	Microbiology - water / air, Inorganics - water / solids / oils, Organics - water / solids / oils
<b>Program Specialty Area:</b>	Proficiency Testing Provider
<b>Initial Accreditation:</b>	2005-08-18
<b>Most Recent Accreditation:</b>	2023-09-18
<b>Accreditation Valid to:</b>	2025-08-18

*Remarque: La présente portée d'accréditation existe également en français. La version française est publiée séparément.*

*Note: This scope of accreditation is also available in French as a separately issued document.*

**PROFICIENCY TESTING PARAMETERS FOR WHICH THE PROVIDER IS ACCREDITED**

Environment:

**Microbiology – Water**

Parameters	Concentrations (min - max)
<b>Total coliforms</b>	0 - 100 CFU/100 ml 0 - 100 000 CFU/100 ml
<b>Fecal coliforms</b>	0 - 100 CFU/100 ml 0 - 100 000 CFU/100 ml
<b><i>Fecal streptococci</i></b>	0 - 100 CFU/100 ml
<b><i>Escherichia coli</i></b>	0 - 100 CFU/100 ml 0 - 100 000 CFU/100 ml
<b>Heterotrophic plate count</b>	0 - 300 000 CFU/100 ml
<b><i>Pseudomonas aeruginosa</i></b>	0 - 100 CFU/100 ml
<b><i>Staphylococcus aureus</i></b>	0 - 100 CFU/100 ml
<b><i>Salmonella</i> (Positive/Negative)</b>	0 - 60 CFU/100 ml
<b>Total coliforms (Positive/Negative)</b>	0 – 6000 CFU/100ml
<b><i>Escherichia coli</i> (Positive/Negative)</b>	0 – 6000 CFU/100ml
<b>Coliphages (F-specific) (Positive/Negative)</b>	0 – 150 PFU/100ml

**Inorganic chemistry - Water**

Parameters	Concentrations (min - max)
<b>Absorbable Organic Halides</b> AOX	0.5 - 40 mg/l
<b>Ammonia nitrogen</b>	0.07 - 20 mg N/l
<b>Total Kjeldahl nitrogen</b>	1 - 20 mg N/l
<b>Orthophosphate</b>	0.05 - 10 mg P/l
<b>Total phosphorus</b>	0,002 - 10 mg P/l
<b>Boron</b>	2 - 50 mg/l
<b>Bromates</b>	6 - 20 µg/l
<b>Bromides</b>	0.25 - 10 mg/l
<b>Total organic carbon</b>	1 - 50 mg/l
<b>Chlorides</b>	5 - 1000 mg/l
<b>Chlorites</b>	0,01 – 1 mg/l
<b>Chlorates</b>	0,01 – 1 mg/l
<b>Conductivity</b>	50 - 10000 µmhos/cm
<b>Total reduced sulfur compounds</b>	5 – 1000 mg SO <sub>4</sub> /l
<b>Corrosivity</b>	5 - 15 mm/year
<b>Color</b>	5 - 2000 CoPt units
<b>Cyanide</b>	0.015 - 20 mg/l
<b>Available cyanides</b>	0,1 – 2 mg/l
<b>Cyanates</b>	5 – 50 mg/l

<b>Biological oxygen demand (5 days)</b>	8 - 500 mg O <sub>2</sub> /l
<b>Chemical oxygen demand</b>	15 - 1 000 mg O <sub>2</sub> /l
<b>Sulfur dioxide</b>	5 – 1000 mg SO <sub>2</sub> /l
<b>Fluoride</b>	0,1 - 20 mg/l
<b>Phenolics (colorimetric method)</b>	0,01 – 0,5 mg/l
<b>Mercury</b>	0,0002 – 0,5 mg/l
<b>Metals</b>	
Aluminium	0,075 - 50 mg/l
Antimony	0,03 - 5 mg/l
Silver	0,05 - 1 mg/l
Arsenic	0,0002 - 10 mg/l
Barium	0,1 - 50 mg/l
Beryllium	0,002 - 5 mg/l
Cadmium	0,002 - 10 mg/l
Chromium	0,01 - 10 mg/l
Cobalt	0,02 - 10 mg/l
Copper	0,01 - 10 mg/l
Tin	0,3 – 10 mg/l
Iron	0,02 - 100 mg/l
Magnesium	1 - 100 mg/l
Manganese	0,005 - 20 mg/l
Molybdenum	0,01 - 0,5 mg/l
Nickel	0,006 - 10 mg/l
Lead	0,003 - 5 mg/l
Potassium	0,1 – 2 mg/l
Selenium	0,002 - 10 mg/l
Silicon	0,5 – 2 mg/l
Sodium	2 - 200 mg/l
Strontium	0,04 – 100 mg/l
Thallium	0,005 - 10 mg/l
Uranium	0,01 – 0,1 mg/l
Zinc	0,05 - 20 mg/l
Vanadium	0,015 - 10 mg/l
Hexavalent chromium	0,01 - 1 mg/l
<b>Nitrates and nitrites</b>	0,006 - 100 mg N/l
<b>Nitrates</b>	1 - 50 mg N/l
<b>Nitrites</b>	0.05 - 5 mg N/l
<b>pH</b>	2 - 11 units
<b>Radionuclides</b>	
Tritium	100 - 70 000 Bq/l
Radium 226	0.05 - 10 Bq/l
<b>Suspended solids</b>	4 - 500 mg/l
<b>Volatile suspended solids</b>	10 - 500 mg/l
<b>Total solids</b>	25 - 1000 mg/l
<b>Dissolved solids</b>	25 - 1000 mg/l
<b>Sulphates</b>	2 - 1000 mg/l

<b>Sulphides</b>	0.02 - 20 mg/l
<b>Thiocyanates</b>	0,17 – 2 mg/l
<b>Thiosulfates</b>	0,13 – 2 mg/l
<b>Turbidity</b>	0.3 - 25 NTU

### Organic chemistry - Water

Parameters	Concentrations (min - max)
<b>Aldicarbe</b> Aldicarbe Aldicarbe sulfoxide Aldicarbe sulfone	2 - 4 µg/l
<b>PCBs Aroclor®</b> Total PCBs Aroclor®	0.1 - 10 µg/l
<b>Polychlorinated biphenyls congener</b> 18 ; 2,2',5 ; Tri-PCBPCB 17 ; 2,2',4 ; Tri-PCBPCB 18 ; 2,2',5 ; Tri-PCBPCB & 17 ; 2,2',4 ; Tri-PCBPCB 28 ; 2,4,4' ; Tri-PCBPCB 31 ; 2,4',5 ; Tri-PCBPCB 28 ; 2,4,4' ; Tri-PCBPCB & 31 ; 2,4',5 ; Tri-PCBPCB 33 ; 2',3,4 ; Tri-PCBPCB 52 ; 2,2',5,5' ; Tetra-PCB 49 ; 2,2',4,5' ; Tetra-PCB 44 ; 2,2',3,5' ; Tetra-PCB 74 ; 2,4,4',5 ; Tetra-PCB 70 ; 2,3',4',5 ; Tetra-PCB 95 ; 2,2',3,5',6 ; Penta-PCB 70 ; 2,3',4',5 ; Tetra-PCB & 95 ; 2,2',3,5',6 ; Penta-PCB 101 ; 2,2',4,5,5' ; Penta-PCB 99 ; 2,2',4,4',5 ; Penta-PCB 87 ; 2,2',3,4,5' ; Penta-PCB 110 ; 2,3,3',4',6 ; Penta-PCB 118 ; 2,3',4,4',5 ; Penta-PCB 105 ; 2,3,3',4,4' ; Penta-PCB 82 ; 2,2',3,3',4 ; Penta-PCB 151 ; 2,2',3,5,5',6 ; Hexa-PCB 82 ; 2,2',3,3',4 ; Penta-PCB & 151 ; 2,2',3,5,5',6 ; Hexa-PCB 149 ; 2,2',3,4',5',6 ; Hexa-PCB 153 ; 2,2',4,4',5,5' ; Hexa-PCB 132 ; 2,2',3,3',4,6' ; Hexa-PCB 138 ; 2,2',3,4,4',5' ; Hexa-PCB 158 ; 2,3,3',4,4',6 ; Hexa-PCB 138 ; 2,2',3,4,4',5' ; Hexa-PCB & 158 ; 2,3,3',4,4',6 ; Hexa-PCB 128 ; 2,2',3,3',,4,4' ; Hexa-PCB 156 ; 2,3,3',4,4',5 ; Hexa-PCB 169 ; 3,3',4,4',5,5' ; Hexa-PCB 187 ; 2,2',3,4',5,5',6 ; Hepta-PCB 183 ; 2,2',3,4,4',5',6 ; Hepta-PCB 177 ; 2,2',3,3',4',5,6 ; Hepta-PCB 171 ; 2,2',3,3',4,4',6 ; Hepta-PCB 180 ; 2,2',3,4,4',5,5' ; Hepta-PCB	0,2 – 5 µg/l (each)

<p>191 ; 2,3,3',4,4',5',6 ; Hepta-PCB  170 ; 2,2',3,3',4,4',5 ; Hepta-PCB  199 ; 2,2',3,3',4,5,5',6 ; Octa-PCB  195 ; 2,2',3,3',4,4',5,6 ; Octa-PCB  194 ; 2,2',3,3',4,4',5,5' ; Octa-PCB  205 ; 2,3,3',4,4',5,5',6 ; Octa-PCB  208 ; 2,2',3,3',4,5,5',6,6' ; Nona-PCB  206 ; 2,2',3,3',4,4',5,5',6 ; Nona-PCB  209 ; 2,2',3,3',4,4',5,5',6,6' ; Deca-PCB</p>	
<p><b>Polychlorinated biphenyls homologs</b>  18 ; 2,2',5 ; Tri-PCB  17 ; 2,2',4 ; Tri-PCB  28 ; 2,4,4' ; Tri-PCB  31 ; 2,4',5 ; Tri-PCB  33 ; 2',3,4 ; Tri-PCB  52 ; 2,2',5,5' ; Tetra-PCB  49 ; 2,2',4,5' ; Tetra-PCB  44 ; 2,2',3,5' ; Tetra-PCB  74 ; 2,4,4',5 ; Tetra-PCB  70 ; 2,3',4,5 ; Tetra-PCB  95 ; 2,2',3,5',6 ; Penta-PCB  101 ; 2,2',4,5,5' ; Penta-PCB  99 ; 2,2',4,4',5 ; Penta-PCB  87 ; 2,2',3,4,5' ; Penta-PCB  110 ; 2,3,3',4',6 ; Penta-PCB  118 ; 2,3',4,4',5 ; Penta-PCB  105 ; 2,3,3',4,4' ; Penta-PCB  82 ; 2,2',3,3',4 ; Penta-PCB  151 ; 2,2',3,5,5',6 ; Hexa-PCB  149 ; 2,2',3,4',5',6 ; Hexa-PCB  153 ; 2,2',4,4',5,5' ; Hexa-PCB  132 ; 2,2',3,3',4,6' ; Hexa-PCB  138 ; 2,2',3,4,4',5' ; Hexa-PCB  158 ; 2,3,3',4,4',6 ; Hexa-PCB  128 ; 2,2',3,3',4,4' ; Hexa-PCB  156 ; 2,3,3',4,4',5 ; Hexa-PCB  169 ; 3,3',4,4',5,5' ; Hexa-PCB  187 ; 2,2',3,4',5,5',6 ; Hepta-PCB  183 ; 2,2',3,4,4',5',6 ; Hepta-PCB  177 ; 2,2',3,3',4',5,6 ; Hepta-PCB  171 ; 2,2',3,3',4,4',6 ; Hepta-PCB  180 ; 2,2',3,4,4',5,5' ; Hepta-PCB  191 ; 2,3,3',4,4',5',6 ; Hepta-PCB  170 ; 2,2',3,3',4,4',5 ; Hepta-PCB  199 ; 2,2',3,3',4,5,5',6 ; Octa-PCB  195 ; 2,2',3,3',4,4',5,6 ; Octa-PCB  194 ; 2,2',3,3',4,4',5,5' ; Octa-PCB  205 ; 2,3,3',4,4',5,5',6 ; Octa-PCB  208 ; 2,2',3,3',4,5,5',6,6' ; Nona-PCB  206 ; 2,2',3,3',4,4',5,5',6 ; Nona-PCB  209 ; 2,2',3,3',4,4',5,5',6,6' ; Deca-PCB</p>	<p>500 – 10000 pg/l (each)</p>
<p><b>Volatile organic compounds, BTEX and THM</b>  1,1,1-trichloroethane</p>	<p>1 - 20 µg/l</p>

<p>1,1,2,2-tetrachloroethane  1,1,2,2-tetrachloroethene  1,1,2-trichloroethane  1,1-dichloroethane  Chlorobenzene  1,1-dichloroethene  1,2-dichlorobenzene  1,2-dichloroethane  1,2-dichloroethene (cis)  1,2-dichloroethene (trans)  1,2-dichloropropane  1,3-dichlorobenzene  1,3-dichloropropene (cis)  1,3-dichloropropene (trans)  1,4-dichlorobenzene  Benzene (BTEX and VOC)  Bromodichloromethane (THM)  Bromoforme (THM)  Chloroforme (THM and VOC)  Vinyl chloride  Dibromochloromethane (THM)  Dichloromethane  Ethylbenzene (BTEX and VOC)  m,p-xylene (BTEX and VOC)  o-xylene (BTEX and VOC)  Styrene  Carbon tetrachloride  Toluene (BTEX and VOC)  Total volatil organic compound (VOC)  Trichloroethene</p>	
<p><b>Phenolics compounds</b>  2,3,4,5-tetrachlorophenol  2,3,4,6-tetrachlorophenol  2,3,4-trichlorophenol  2,3,5,6-tetrachlorophenol  2,3,5-trichlorophenol  2,3,6-trichlorophenol  2,3-dichlorophenol  2,4 + 2,5-dichlorophenol  2,4,5-trichlorophenol  2,4,6-trichlorophenol  2,4-dichlorophenol  2,4-dimethylphenol  2,4-dinitrophenol  2,5-dichlorophenol  2,6-dichlorophenol  2-chlorophenol  2-methyl-4,6-dinitrophenol  2-nitrophenol  3,4,5,6-tetrachloroveratrol  3,4,5-trichlorocatechol  3,4,5-trichloroguaiacol  3,4,5-trichlorophenol</p>	<p>2 - 20 µg/l</p>

<p>3,4,5-trichlorosyringol          3,4,5-trichloroveratrol          3,4-dichlorophenol          3,5-dichlorocatechol          3,5-dichlorophenol          3-chlorophenol          4,5,6-trichloroguaiacol          4,5-dichlorocatechol          4,5-dichloroguaiacol          4,5-dichloroveratrol          4,6-dichloroguaiacol          4-chlorocatechol          4-chloroguaiacol          4-chlorophenol          4-nitrophenol          5,6-dichlorovanilline          6-chlorovanilline          Catechol          Dinitro-4,6-cresol          Eugenol          Guaiacol          Isoeugenol          m-cresol          o-cresol          p-cresol          Pentachlorophenol          Phenol          Tetrachlorocatechol          Tetrachloroguaiacol</p>	
<p><b>Diquat and paraquat</b>          Diquat          Paraquat</p>	<p>16 - 80 µg/l          1 - 15 µg/l</p>
<p><b>Dioxins and furans</b>          2,3,7,8-tetrachlorodibenzodioxin          All isomers of tetrachlorodibenzodioxins          1,2,3,7,8-pentachlorodibenzodioxin          All isomers of pentachlorodibenzodioxins          1,2,3,4,7,8-hexachlorodibenzodioxin          1,2,3,6,7,8-hexachlorodibenzodioxin          1,2,3,7,8,9-hexachlorodibenzodioxin          All isomers of hexachlorodibenzodioxins          1,2,3,4,6,7,8-heptachlorodibenzodioxin          All isomers of heptachlorodibenzodioxins          Octachlorodibenzodioxin          Chlorodibenzo-p-dioxins total          2,3,7,8-tetrachlorodibenzofuran          All isomers of tetrachlorodibenzofurans          1,2,3,7,8-pentachlorodibenzofuran          2,3,4,7,8-pentachlorodibenzofuran          All isomers of pentachlorodibenzofurans          1,2,3,4,7,8-hexachlorodibenzofuran          1,2,3,6,7,8-hexachlorodibenzofuran          1,2,3,7,8,9-hexachlorodibenzofuran</p>	<p>5 - 100 pg/l</p>

2,3,4,6,7,8-hexachlorodibenzofuran All isomers of hexachlorodibenzofurans 1,2,3,4,6,7,8-heptachlorodibenzofuran 1,2,3,4,7,8,9-heptachlorodibenzofuran All isomers of heptachlorodibenzofurans Octachlorodibenzofuran Chlorodibenzo-p-furans total	
<b>Glyphosate</b>	25 - 80 µg/l
<b>Oil and grease, hydrocarbons C<sub>10</sub> - C<sub>50</sub></b> Synthetic oil and grease (grav.) Total oil and grease (grav.) Hydrocarbons C <sub>10</sub> - C <sub>50</sub>	0.3 - 200 mg/l
<b>Polycyclic Aromatic Hydrocarbons (PAH)</b> Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene (0,01 - 0,05 µg/l) Benzo(e)pyrene Benzo(b,j,k)fluoranthene Benzo(c)phenanthrene Benzo(g,h,i)perylene Chrysene Dibenzo(a,e)pyrene Dibenzo(a,h)acridine Dibenzo(a,h)anthracene Dibenzo(a,h)pyrene Dibenzo(a,i)pyrene Dibenzo(a,l)pyrene Fluorene Fluoranthene Indeno(1,2,3-cd)pyrene Methylchrysene Naphthalene Perylene Phenanthrene Pyrene	0.1 - 50 µg/l
<b>NTA</b> Nitritotriacetic acid	50 - 200 µg/l
<b>OP pesticides</b> Atrazine Atrazine and metabolites Azinphos methyl Carbaryl Carbofuran Chloropyrifos Chlorothalonil Cyanazine Diazinon Diethyl atrazine Dimethoate Diuron Ethyl parathion (parathion)	0,05 - 70 µg/l



<p>Malathion Metolachlor Metribuzin Myclobutanil Parathion Permethrin Phorate Simazine Tebuthiuron Terbufos Trifuralin</p>	
<p><b>Aryloxy Acid pesticides</b> 2,4,5-T 2,4-D 2,4-DB Bentazon Bromoxynil Dicamba Dichlorprop Fenoprop (Sylvex) MCPA (0.5 – 50 µg/l) Picloram Sylvex (Fenoprop)</p>	0,1 - 10 µg/l
<p><b>OCL pesticides</b> Aldrin Chlordane (alpha) Chlordane (gamma) Dieldrin Endosulfan (I and II) Endrin Heptachlor epoxyde Heptachlor Lindane Methoxychlor Mirex p,p-DDE p,p-DDT</p>	0,055 - 14 µg/l
<b>Formaldehyde</b>	100 – 1000 µg/l
<b>Hydrazine</b>	0,01 – 0,5 mg/l
<p><b>Halogenated acetic acids</b> Chloroacetic acid Dichloroacetic acid Bromoacetic acid Trichloroacetic acid Dibromoacetic acid</p>	3 – 100 µg/l (each)
<p><b>Fatty and resin acids</b> Linoleic acid Linolenic acid Oleic acid 9,10-dichlorostearic acid Stearic acid Palmitic acid Palmitoleic acid</p>	50 -550 µg/l (each)

Pimaric acid Sandaracopimaric acid Isopimaric acid Palustric acid Levopimaric acid Dehydroabietic acid Neoabietic acid 12-chlorodehydroabietic acid 12,14-dichlorodehydroabietic acid Abietic acid	
<b>Microcystins</b> microcystin-LA microcystin-LR microcystinRR microcystin YR	0,1 – 100 µg/l (each)

### Toxicology – Water

Parameters	Concentrations (min - max)
<b>Lethality with Rainbow trout</b>	N/A
<b>Lethality with daphnia</b>	N/A
<b>Lethality with fathead minnow</b>	N/A
<b>Larval growth inhibition with fathead minnow</b>	N/A
<b>Growth inhibition with algae <i>Raphidocelis subcapitata</i></b>	N/A

### Inorganic chemistry - Effluents

Parameters	Concentrations (min - max)
<b>Total phosphorus</b>	0,1 -10 mg P/l
<b>Metals</b>	
Aluminium	0,075 - 5 mg/l
Silver	0,02 - 1 mg/l
Arsenic	0,1 - 10 mg/l
Barium	0,1 - 10 mg/l
Cadmium	0,002 - 10 mg/l
Chromium	0,3 - 10 mg/l
Cobalt	0,005 - 10 mg/l
Copper	0,01 - 10 mg/l
Tin	0,05 - 10 mg/l
Iron	0,2 - 50 mg/l
Manganese	0,05 - 2 mg/l
Mercury	0,0001 - 0.5 mg/l
Molybdenum	0,1 - 10 mg/l
Nickel	0,006 - 10 mg/l
Lead	0,003 - 5 mg/l

Selenium	0,015 – 0,5 mg/l
Zinc	0,02 - 20 mg/l
Hexavalent chromium	0,01 - 1 mg/l

### Organic chemistry – Effluents

Parameters	Concentrations (min - max)
<b>PCBs PCBs congener (each)</b>	0,02 - 5 µg/l
<b>Polycyclic Aromatic Hydrocarbons (PAH)</b>	0,1 - 50 µg/l
Polycyclic Aromatic Hydrocarbons (each)	
Anthracene	
Benzo(a)anthracene	
Benzo(b)fluoranthene	
Benzo(j)fluoranthene	
Benzo(k)fluoranthene	
Benzo(g,h,i)perylene	
Chrysene	
Dibenzo(a)pyrene	
Dibenzo(e)pyrene	
Dibenzo(a,h)anthracene	
Dibenzo(a,i)pyrene	
Fluorene	
Fluoranthene	
Indeno(1,2,3-cd)pyrene	
Naphthalene	
Phenanthrene	
Pyrene	
<b>Volatile organic compounds (each)</b>	1 - 20 µg/l
Benzene	
1,1,2,2-tetrachloroethane	
1,2-dichlorobenzene	
1,2-dichloroethene (cis)	
1,2-dichloroethene (trans)	
1,3-dichloropropene (cis)	
1,3-dichloropropene (trans)	
1,4-dichlorobenzene	
Dichloromethane	
<b>Semi-volatile organic compounds (each)</b>	1 - 50 µg/l
3,3-dichlorobenzidine	
Bis(2-ethylhexyl)phthalate	
Dibutyl phthalate	
<b>All isomers of nonylphenol</b>	10 - 300 µg/l
<b>Polyethoxylates nonylphenol (each)</b>	2 - 300 µg/l
NP1EO	
NP2EO	
NP3EO	
NP4EO	
NP5EO	
NP6EO	
NP7EO	
NP8EO	

NP9EO NP10EO NP11EO NP12EO NP13EO NP14EO NP15EO NP16EO NP17EO	
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### Microbiology – solids

Parameters	Concentrations (min - max)
<i>Escherichia coli</i>	0 - 1 000 000 CFU/g dry

### Inorganic chemistry – Solids (soil, sludge, waste) and oils

Parameters	Concentrations (min - max)
<b>Nitrogen and phosphorus (solids)</b>	
Ammonia nitrogen	0,04 - 25 g N/kg
Total Kjeldahl nitrogen	1 - 100 g N/kg
Nitrates and nitrites	0,02 - 1,5 g N/kg
Inorganic phosphorus	0,01 - 25 g P/kg
Total phosphorus	1 - 35 g P/kg
<b>Metals (solids)</b>	
Aluminium	0.03 - 75 g/kg
Silver	10 - 40 mg/kg
Arsenic	7 - 100 mg/kg
Barium	20 - 2000 mg/kg
Boron	20 - 500 mg/kg
Cadmium	2,5 - 100 mg/kg
Calcium	0,1 - 350 g/kg
Chromium	100 - 2000 mg/kg
Cobalt	25 - 1500 mg/kg
Copper	50 - 2000 mg/kg
Tin	5 - 300 mg/kg
Magnesium	0,1 - 100 g/kg
Manganese	0,01 - 5 g/kg
Mercury	1 - 25 mg/kg
Molybdenum	5 - 200 mg/kg
Nickel	50 - 2000 mg/kg
Lead	100 - 2000 mg/kg
Potassium	0,1 - 15 g/kg
Selenium	1,5 - 25 mg/kg
Zinc	250 - 3000 mg/kg
<b>Available Bromides (solids)</b>	25 - 600 mg/kg
<b>Total halogenes (oils)</b>	800 - 4500 mg/kg
<b>Leaching (TCLP) (solids)</b>	0,5 - 20 mg/l

<b>Solids</b>	
Total solids	2 - 300 g/kg
Volatile total solids	2 - 200 g/kg
<b>Hydrogen cyanide</b>	50 – 500 mg HCN/kg
<b>Hydrogen sulfide</b>	100 – 1000 mg H <sub>2</sub> S/kg
<b>Calorific value</b>	14000 – 50000 kJ/kg
<b>Sulfur (oils)</b>	0,5 – 5 % (M/M)
<b>Sulfur (soils)</b>	200 – 5000 mg/kg
<b>Flash point</b>	30 – 80 °C
<b>Metals (oils)</b>	
Arsenic	3 – 25 mg/kg
Cadmium	1 – 10 mg/kg
Chromium	5 – 50 mg/kg
Lead	50 – 500 mg/kg
<b>Total organic carbon</b>	0,5 – 10 %
<b>Leachable fluoride</b>	100 – 1000 mg/l
<b>Hexavalent chromium</b>	2 – 200 mg/kg
<b>pH (solids)</b>	2 - 11 units
<b>pH (liquid)</b>	1,5 – 13 units
<b>pH (agricultural ground)</b>	
pH (water)	4 - 8 units
pH (tampon)	5 - 8 units
<b>Metals (agricultural ground)</b>	
Aluminium	500 - 2500 mg/kg
Calcium	500 - 15000 kg/ha
	0,5 - 20 kg/t
Copper	1 - 10 mg/kg
Magnesium	50 - 1000 kg/ha
	0,02 – 1 kg/t
Manganese	5 - 200 mg/kg
Potassium	50 - 1000 kg/ha
	0,5 - 5 kg/t
Zinc	1 - 20 mg/kg
<b>Nitrates (agricultural ground)</b>	2 - 50 mg/kg
<b>Boron (agricultural ground)</b>	
Boron (Mehlich III)	0,1 - 2 mg/kg
<b>Phosphorus (agricultural ground)</b>	
Assimilable phosphorus	50 - 500 kg/ha
Total phosphorus	0,1 - 3 kg/t
<b>Organic matter (agricultural ground)</b>	1 - 100 %
<b>Loss on ignition (agricultural ground)</b>	1 - 50 %
<b>Nitrogen (agricultural ground)</b>	
Ammonia nitrogen	0,2 - 10 kg/t
Total nitrogen	0,2 - 40 kg/t
<b>Ashes (agricultural ground)</b>	5 - 50 %

#### Organic chemistry - Solids (soil, sludge, waste) and oils

Parameters	Concentrations (min - max)
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<b>PCBs Aroclor® (solids)</b> Total PCBs Aroclor	0,5 - 50 mg/kg
<b>PCBs Aroclor® (oils)</b> Total PCBs Aroclor	1 - 100 mg/kg
<b>PCBs congener (solids)</b> PCBs congener 8 ; 2, 4' ; Di-PCB 15 ; 4,4' ; Di-PCB 18 ; 2,2',5 ; Tri-PCB 17 ; 2,2',4 ; Tri-PCB 16 ; 2,2',3 ; Tri-PCB & 32; 2,4',6 ; Tri-PCB 28 ; 2,4,4' ; Tri-PCB & 31 ; 2,4',5 ; Tri-PCB 33 ; 2',3,4 ; Tri-PCB 22 ; 2,3,4' ; Tri-PCB 52 ; 2,2',5,5' ; Tetra-PCB 49 ; 2,2',4,5' ; Tetra-PCB 44 ; 2,2',3,5' ; Tetra-PCB 74 ; 2,4,4',5 ; Tetra-PCB 70 ; 2,3',4',5 ; Tetra-PCB 66 ; 2,3',4,4' ; Tetra-PCB 95 ; 2,2',3,5',6 ; Penta-PCB 101 ; 2,2',4,5,5' ; Penta-PCB 99 ; 2,2',4,4',5 ; Penta-PCB 87 ; 2,2',3,4,5' ; Penta-PCB 110 ; 2,3,3',4',6 ; Penta-PCB 82 ; 2,2',3,3',4 ; Penta-PCB 118 ; 2,3',4,4',5 ; Penta-PCB 105 ; 2,3,3',4,4' ; Penta-PCB 151 ; 2,2',3,5,5',6 ; Hexa-PCB 149 ; 2,2',3,4',5',6 ; Hexa-PCB 153 ; 2,2',4,4',5,5' ; Hexa-PCB 132 ; 2,2',3,3',4,6' ; Hexa-PCB 138 ; 2,2',3,4,4',5' ; Hexa-PCB 158 ; 2,3,3',4,4',6 ; Hexa-PCB 128 ; 2,2',3,3',4,4' ; Hexa-PCB 156 ; 2,3,3',4,4',5 ; Hexa-PCB 169 ; 3,3',4,4',5,5' ; Hexa-PCB 187 ; 2,2',3,4',5,5',6 ; Hepta-PCB 183 ; 2,2',3,4,4',5',6 ; Hepta-PCB 177 ; 2,2',3,3',4',5,6 ; Hepta-PCB 171 ; 2,2',3,3',4,4',6 ; Hepta-PCB 180 ; 2,2',3,4,4',5,5' ; Hepta-PCB 191 ; 2,3,3',4,4',5',6 ; Hepta-PCB 170 ; 2,2',3,3',4,4',5 ; Hepta-PCB 199 ; 2,2',3,3',4,5,5',6' ; Octa-PCB 195 ; 2,2',3,3',4,4',5,6 ; Octa-PCB 194 ; 2,2',3,3',4,4',5,5' ; Octa-PCB 205 ; 2,3,3',4,4',5,5',6 ; Octa-PCB 208 ; 2,2',3,3',4,5,5',6,6' ; Nona-PCB 206 ; 2,2',3,3',4,4',5,5',6 ; Nona-PCB 209 ; 2,2',3,3',4,4',5,5',6,6' ; Deca-PCB	0,017 - 0.8 mg/kg
<b>Volatile organic compound and BTEX (solids)</b> 1,1,1-trichloroethane	0.1 - 100 mg/kg

<p>1,1,2,2-tetrachloroethane  1,1,2,2-tetrachloroethene  1,1,2-trichloroethane  1,1-dichloroethane  1,1-dichloroethene  1,2-dichlorobenzene  1,2-dichloroethane  1,2-dichloroethene (cis)  1,2-dichloroethene (trans)  1,2-dichloropropane  1,3-dichlorobenzene  1,3-dichloropropene (cis)  1,3-dichloropropene (trans)  1,4-dichlorobenzene  Benzene  Chlorobenzene  Chloroform  Vinyl chloride  Dichloromethane  Ethylbenzene  m,p-xylene  o-xylene  Styrene  Carbon tetrachloride  Toluene  VOC total  Trichloroethene</p>	
<p><b>Phenolic compound (solids)</b>  2,3,4,5-tetrachlorophenol  2,3,4,6-tetrachlorophenol  2,3,4-trichlorophenol  2,3,5,6-tetrachlorophenol  2,3,5-trichlorophenol  2,3,6-trichlorophenol  2,3-dichlorophenol  2,4,5-trichlorophenol  2,4,6-trichlorophenol  2,4-dichlorophenol  2,4-dimethylphenol  2,4-dinitrophenol  2,5-dichlorophenol  2,6-dichlorophenol  2-chlorophenol  2-methyl-4,6-dinitrophenol  2-nitrophenol  3,4,5-trichlorophenol  3,4-dichlorophenol  3,5-dichlorophenol  3-chlorophenol  4,6-dinitrocresol  4-chlorophenol  4-nitrophenol  m-cresol  o-cresol</p>	<p>0.1 - 50 mg/kg</p>

p-cresol Pentachlorophenol Phenol Total Phenolic compound	
<b>Dioxines and furans (solids)</b> 2,3,7,8-tetrachlorodibenzodioxine All isomers of tetrachlorodibenzodioxines 1,2,3,7,8-pentachlorodibenzodioxine All isomers of pentachlorodibenzodioxines 1,2,3,4,7,8-hexachlorodibenzodioxine 1,2,3,6,7,8-hexachlorodibenzodioxine 1,2,3,7,8,9-hexachlorodibenzodioxine All isomers of hexachlorodibenzodioxines 1,2,3,4,6,7,8-heptachlorodibenzodioxine All isomers of heptachlorodibenzodioxines Octachlorodibenzodioxine Chlorodibenzo-p-dioxines total 2,3,7,8-tetrachlorodibenzofurane All isomers of tetrachlorodibenzofuranes 1,2,3,7,8-pentachlorodibenzofurane 2,3,4,7,8-pentachlorodibenzofurane All isomers of pentachlorodibenzofuranes 1,2,3,4,7,8-hexachlorodibenzofurane 1,2,3,6,7,8-hexachlorodibenzofurane 1,2,3,7,8,9-hexachlorodibenzofurane 2,3,4,6,7,8-hexachlorodibenzofurane All isomers of hexachlorodibenzofuranes 1,2,3,4,6,7,8-heptachlorodibenzofurane 1,2,3,4,7,8,9- heptachlorodibenzofurane All isomers of heptachlorodibenzofuranes Octachlorodibenzofurane Total Chlorodibenzo-p-furanes	1 - 1500 pg/g
<b>Polycyclic Aromatic Hydrocarbons (PAH) (solids)</b> Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(e)pyrene Benzo(b,j,k)fluoranthene Benzo(c)phenanthrene Benzo(g,h,i)perylene Chrysene Dibenzo(a,e)pyrene Dibenzo(a,h)acridine Dibenzo(a,h)anthracene Dibenzo(a,h)pyrene Dibenzo(a,i)pyrene Dibenzo(a,l)pyrene Fluorene Fluoranthene Indeno(1,2,3-cd)pyrene Methylchrysene	0,01 - 100 mg/kg



Naphthalene Perylene Phenanthrene Pyrene	
<b>Hydrocarbons C<sub>10</sub> - C<sub>50</sub> (soil)</b> Hydrocarbons C <sub>10</sub> - C <sub>50</sub>	100 - 10000 mg/kg
<b>Formaldehyde</b>	5 – 100 mg/kg
<b>Ethylene Glycol</b>	10 – 100 mg/kg
<b>Chlorobenzenes</b> 1,2,3-trichlorobenzene 1,2,3,4-tetrachlorobenzene 1,2,3,5-tetrachlorobenzene 1,2,4,5-tetrachlorobenzene Pentachlorobenzene Hexachlorobenzene 1,3,5-trichlorobenzene 1,2,4-trichlorobenzene 1,2,3,5+1,2,4,5-tetrachlorobenzene	0,1 – 20 mg/kg (each)
<b>Semi-volatile organic compounds</b> Dibutyl phthalate Trinitro-2,4,6-toluene	1 – 10 mg/kg 3 – 20 mg/kg
<b>Tebuthiuron</b>	1 – 20 mg/kg

#### Inorganic chemistry – Fish farming

Parameters	Concentrations (min - max)
<b>Phosphorus</b>	
Phosphorus content	1000 - 25 000 mg/kg
<b>Suspended solids</b>	4 - 50 mg/l
<b>Moisture content</b>	2 - 15 %

#### Inorganic chemistry – Air

Paramètres	Concentrations (min - max)
<b>Fluoride (filters)</b>	0,1 – 10 mg total
<b>Particulate matter (filters)</b>	5 -1000 mg total
<b>Mercury (filters)</b>	0,1 – 5 µg total
<b>Mercury (permanganate)</b>	1 – 50 µg/l
<b>Fluoride (fodder)</b>	10 – 500 mg/kg
<b>Particulate fluorides</b>	5 – 50 mg F total

#### Organic chemistry – Air

Paramètres	Concentrations (min - max)
<b>Polychlorinated biphenyls congener (XAD-2 resin)</b> 18 ; 2,2',5 ; Tri-PCB 17 ; 2,2',4 ; Tri-PCB 18 ; 2,2',5 ; Tri-PCB & 17 ; 2,2',4 ; Tri-PCB	0,02 - 0,1 µg total (each)

<p>16 ; 2,2',3 ; Tri-PCB &amp; 32; 2,4',6 ; Tri-PCB  28 ; 2,4,4' ; Tri-PCB  31 ; 2,4',5 ; Tri-PCB  28 ; 2,4,4' ; Tri-PCB &amp; 31 ; 2,4',5 ; Tri-PCB  33 ; 2',3,4 ; Tri-PCB  22 ; 2,3,4' ; Tri-PCB  52 ; 2,2',5,5' ; Tetra-PCB  49 ; 2,2',4,5' ; Tetra-PCB  44 ; 2,2',3,5' ; Tetra-PCB  74 ; 2,4,4',5 ; Tetra-PCB  66 ; 2,3',4,4' ; Tetra-PCB  70 ; 2,3',4',5 ; Tetra-PCB  95 ; 2,2',3,5',6 ; Penta-PCB  70 ; 2,3',4',5 ; Tetra-PCB &amp; 95 ; 2,2',3,5',6 ; Penta-PCB  101 ; 2,2',4,5,5' ; Penta-PCB  99 ; 2,2',4,4',5 ; Penta-PCB  87 ; 2,2',3,4,5' ; Penta-PCB  110 ; 2,3,3',4',6 ; Penta-PCB  118 ; 2,3',4,4',5 ; Penta-PCB  105 ; 2,3,3',4,4' ; Penta-PCB  82 ; 2,2',3,3',4 ; Penta-PCB  151 ; 2,2',3,5,5',6 ; Hexa-PCB  82 ; 2,2',3,3',4 ; Penta-PCB &amp; 151 ; 2,2',3,5,5',6 ; Hexa-PCB  149 ; 2,2',3,4',5',6 ; Hexa-PCB  153 ; 2,2',4,4',5,5' ; Hexa-PCB  132 ; 2,2',3,3',4,6' ; Hexa-PCB  138 ; 2,2',3,4,4',5' ; Hexa-PCB  158 ; 2,3,3',4,4',6 ; Hexa-PCB  138 ; 2,2',3,4,4',5' ; Hexa-PCB &amp; 158 ; 2,3,3',4,4',6 ; Hexa-PCB"  128 ; 2,2',3,3',4,4' ; Hexa-PCB  156 ; 2,3,3',4,4',5 ; Hexa-PCB  169 ; 3,3',4,4',5,5' ; Hexa-PCB  187 ; 2,2',3,4',5,5',6 ; Hepta-PCB  183 ; 2,2',3,4,4',5',6 ; Hepta-PCB  177 ; 2,2',3,3',4',5,6 ; Hepta-PCB  171 ; 2,2',3,3',4,4',6 ; Hepta-PCB  180 ; 2,2',3,4,4',5,5' ; Hepta-PCB  191 ; 2,3,3',4,4',5',6 ; Hepta-PCB  170 ; 2,2',3,3',4,4',5 ; Hepta-PCB  199 ; 2,2',3,3',4,5,5',6 ; Octa-PCB  195 ; 2,2',3,3',4,4',5,6 ; Octa-PCB  194 ; 2,2',3,3',4,4',5,5' ; Octa-PCB  205 ; 2,3,3',4,4',5,5',6 ; Octa-PCB  208 ; 2,2',3,3',4,5,5',6,6' ; Nona-PCB  206 ; 2,2',3,3',4,4',5,5',6 ; Nona-PCB  209 ; 2,2',3,3',4,4',5,5',6,6' ; Deca-PCB</p>	
<p><b>Polycyclic aromatic hydrocarbons (XAD-2 resin)</b>  Naphthalene  Acenaphthylene  Acenaphthene  Fluorene  Phénanthrene  Anthracene  Fluoranthene</p>	<p>0,1 – 50 µg total (each)</p>

Pyrene Benzo(c)phenanthrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(j)fluoranthene Benzo(k)fluoranthene 7,12-dimethylbenzo(a)anthracene Benzo(e)pyrene Benzo(a)pyrene Perylene 3-methylcholanthrene Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene Dibenzo(a,l)pyrene Dibenzo(a,e)pyrene Dibenzo(a,i)pyrene Dibenzo(a,h)pyrene Dibenzo(a,h)acridine 5-methylchrysene 2-methylnaphtalene 1-methylnaphtalene 1,3-dimethylnaphtalene 2,3,5-trimethylnaphtalene Benzo(b,j,k)fluoranthene	
<b>Pentachlorophenol (XAD-2 resin)</b>	2 – 20 µg total
<b>Volatils organic compounds (XAD-2 resin)</b>	100 – 600 ng total (each)
Isopropyl benzene (cumene) N-propyl benzene o-xylene p-xylene Sec-butyl benzene Ter-butyl benzene 1,2-dichlorobenzene 1,3-dichlorobenzene 1,4-dichlorobenzene 2-chlorotoluene 4-chlorotoluene Benzene Bromobenzene Ethyl benzene m-xylene N-butylbenzene Naphtalene P-isopropyltoluene Styrene Toluene 1,2,3-trichlorobenzene 1,2,4-trichlorobenzene 1,2,4-trimethylbenzene 1,3,5-trimethylbenzene Cis-1,3-dichloropropene Hexachlorobutadiene	

<p>           Trans1,3-dichloropropene            Trichloroethylene            1,1-dichloropropene            1,1,1,2-tetrachloroethane            1,1,2-trichloroethane            1,1,2,2-tetrachloroethane            1,2-dibromo-3-chloropropane            1,2-dibromoethane            1,2-dichloroethane            1,2-dichloropropane            1,2,3-trichloropropane            1,3-dichloropropane            Bromochloromethane            Bromoforme            Carbon tetrachloride            Chloroforme            Dibromomethane            Tetrachloroethylene            1,1-dichloroéthane            1,1,1-trichloroethane            2,2-dichloropropane            Bromodichloromethane            Cis-1,2-dichloroethylene            Dibromochloromethane            Dichloromethane            Trans1,2-dichloroethylene            1,1-dichloroethylene            Somme m-p-xylene            Bromomethane            Chloroethane            Chloromethane            Dichlorodifluoromethane            Trichlorofluoromethane            Vinyl chloride         </p>	
<p> <b>Dioxins and furans (XAD-2 resin)</b>            2,3,7,8-TCDD            1,2,3,7,8-PeCDD            1,2,3,4,7,8-HxCDD            1,2,3,6,7,8-HxCDD            1,2,3,7,8,9-HxCDD            1,2,3,4,6,7,8-HpCDD            OCDD            2,3,7,8-TCDF            1,2,3,7,8-PCDF            2,3,4,7,8-PCDF            1,2,3,4,7,8-HxCDF            1,2,3,6,7,8-HxCDF            1,2,3,7,8,9-HxCDF            2,3,4,6,7,8-HxCDF            1,2,3,4,6,7,8-HpCDF            1,2,3,4,7,8,9-HpCDF            OCDF         </p>	<p>0,1 – 2 ng total</p>

**Microbiology - Air**

Parameters	Concentrations (min - max)
<b>Bacteria in air</b> Bacteria numeration Bacteria identification	< 1 - 300 CFU/m <sup>3</sup> Genus and species
<b>Molds in air</b> Molds numeration Molds identification	< 1 - 100 CFU/m <sup>3</sup> Genus and species
<b>Legionella</b> <i>Legionella ssp.</i> <i>Legionella pneumophila</i>	5000 – 10000000 CFU/l 5000 – 10000000 CFU/l

**Notes:**

**ISO/IEC 17043:2010:** Conformity assessment - General requirements for proficiency testing

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 Publication on: 2023-09-18