



GROUP
EnvironeX

LABORATORY SERVICES

ENVIRONMENT

HEALTH AND PHARMACEUTICAL

AGRIFOOD



MISSION

Improve quality of life
and conserve the environment.

VISION

EnvironeX Group hopes to become the reference in terms of laboratory services, through innovation, accuracy and respect in order to offer its clients, employees and partners services that meet the industry's highest standards.

SERVICE OFFER

EnvironeX Group offers its private, commercial and industrial customers the most diversified range of chemical, microbiological and environmental analysis in the agrifood, health and pharmaceutical sectors.

BRAND IDENTITY

EnvironeX Group employs the industry's highest quality standards, in terms of rapid execution and accurate results to help its clients achieve their objectives and contribute to the success of their projects.

Message from the CEO of Environex Group

Last July 2015, it was with great pride that we made the acquisition of S.M. Analytical Laboratories, a transaction which created Environex Group, whose mission is to improve quality of life and conserve the environment. Environex Group hopes to become the reference in terms of laboratory services, through innovation, accuracy and respect in order to offer its clients, employees and partners services that meet the industry's highest standards.

Since the establishment of Environex Laboratories in 2005, I have worked relentlessly to achieve two goals: create a company which promotes a public image of performance, prosperity and excellence and which employees consider solid, stimulating and attractive. I believe that I have reached this objective so that it can take the next crucial step in its development.

Keeping in mind what motivated me a decade ago, it is with the same determination that I will go forward and bring together this great team of more than 250 specialists, technicians, managers and professionals who will propel Environex Group in the Québec and Canadian market.

Environex Group will be able to fill the needs of a greater number of private, commercial, industrial and institutional clients by offering the most diversified range of chemical and microbiological analysis available in the environmental, agribusiness, nutrition, health and pharmaceutical fields.

Such is the new outlook, both wide ranging and stimulating that Environex Group is contemplating and this corporate brochure presents the services and expertise we can provide so you can benefit from our success.

Thank you for your interest and trust.

Sincerely,



Marc Hamilton
Microbiologist, RMCCM
Chief Executing Officer

ENVIRONMENTAL ANALYSIS

Accredited by the *Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques* (MDDELCC), our laboratories offer a full range of chemical and microbiological analysis to meet your needs. Our team of experienced professionals can guide you in the different phases of your projects by offering personalized customer service. Not only do we offer our expertise to engineering and consulting firms, SMEs, municipalities, large institutions and industries, but also to individuals in order to better protect the public and the environment.

Drinking water

In compliance with the recommendations and standards for the quality of drinking water, we provide our customers with a variety of personalized services:

- › Monitoring and comprehensive analyses of drinking water intended for human consumption in compliance with applicable regulations.

- › Water testing of private wells by our experienced specialists (eg house sale with color issues, taste and odor problems with tap water).
- › Complete analysis and characterization of water from new intake structures.
- › Complete analysis and characterization of groundwater and surface supplies.
- › Bottled water analysis, water and ice supply analysis for food preparation.

Swimming water (beaches, pools & other artificial waters)

We offer beach, swimming pool, wading pool, spa or water park officials, a full service of testing in accordance with regulations to provide the public with safe swimming water at all times.

- › Analysis of pool and other artificial water basins in accordance with the applicable regulation.
- › In partnership with the MDDELCC, we are working to assess the quality of beaches within the Quebec Beach Environment program.
- › Analysis of microcystin in cyanobacteria (toxins produced by blue-green algae) using the ELISA technique.
- › Quantification of *chlorophyll a* in tributaries and lakes.





Wastewater

We are able to meet your sampling, analysis and treatment of wastewater needs. Our professionals will guide you to meet regulations pertaining to:

- > Wastewater, in compliance with municipal by-laws.
- > Melt water and groundwater, as required by the Regulation pertaining to cleared snow disposal facilities.
- > Water analysis as specified by the Industrial Waste Reduction Program. (Examples: pulp and paper and mining.)

Soil, waste and contaminated groundwater

- > Sludge (municipal and other), compost and fertilizer residual analysis.
- > Analysis of the recovery of non-hazardous industrial waste.
- > Waste analysis according to Regulation respecting the burial and burning of residual materials and Hazardous Materials Regulation.
- > Soil and contaminated groundwater analysis as per the Protection Policy for rehabilitation of contaminated land.

Iron ochre

We determine the ferrous ochre profile in water as follows:

- > We use the ASTM D932-85 international method to count and identify the iron bacteria.
- > We use the ISO 17025 colorimetric method to determine levels of ferrous iron (Fe 2+) and total iron. The pH is determined using a pH meter calibrated on a daily basis.
- > Referring to the APCHQ table, we record the blind drain's potential for clogging in the analysis report.



Asbestos/ Vermiculite

The key to reducing the risk of exposure to amphibolic asbestos is to avoid disturbing the vermiculite insulation in any way whatsoever. The risk is minimal if the insulation is contained and not present in the ambient air.

If you think that your house or business contains vermiculite-based insulation or another source of asbestos fibres, do not hesitate to contact us. Our team will collect a sample that will be analyzed by our laboratory that is accredited for the identification of asbestos fibres.

Vermiculite is a mineral similar to mica that is mined worldwide. It is lightweight and has good insulating and fire-retardant properties. Bulk vermiculite insulation can be brown, grey and golden in colour and looks like pebbles with a diameter that varies between 2 and 10 millimetres.

Our asbestos analysis department participates in the «PAT» assessment sequence program of the AIHA and is certified proficient by this organization and is recognized and recommended by the IRSST.

ASSESSMENT OF MICROBIOLOGICAL QUALITY OF THE AIR

We conduct regular air quality assessments to determine the presence of mould, yeast and bacteria. The main areas assessed are the industrial, commercial, institutional and residential sectors to:

- > Detect mold problems after water damage or the presence of excessive moisture.
- > Diagnose a possible health risk to the occupants.
- > Manage decontamination work.

The expertise includes:

- > Detailed inspection of the premises.
- > Air and water samples (if needed).
- > Dust, surface, building material and heat insulator sampling.
- > Results table including counts, proportions of each type of mold and identifying the type and need for the species.
- > If necessary, expertise for yeast, bacteria and other contaminants (asbestos, radon)
- > Full report, including interpretation of results and recommendations.

Detection and enumeration of Legionella

Legionella are bacteria naturally found in freshwater (lakes and rivers), in stagnant water and in moist soils, sediments, sewages, sludge and compost.

Legionellosis is an infectious acute respiratory disease ranging from a mild infection to fatal pneumonia due to inhalation of fine water droplets contaminated with *Legionella*.



Where do we find Legionella:

Legionella bacteria can colonize certain artificial hydric sites if favourable conditions are present to favour its development such as:

- > Evaporative condenser
- > Domestic hot water
- > Spa (whirlpool)
- > Cooling tower water

EnviroX Group laboratories were the first to be accredited for domain 606 "Enumeration of *Legionella sp.*"

We use plating on a gelled area based on the American CDC method. We confirm the pneumophila serotype species using commercial latex.

In addition, we are the only laboratory accredited for all domains of air microbiological quality by the *Centre d'expertise en analyse environnementale du Québec*.

Also offered:

- > Chemical analysis of corrosion and scaling evidence and other factors such as zinc and aluminum which are elements that promote the development of *Legionella*.
- > Microbiological analysis (bacteria and moulds) in ventilation ducts.
- > Identification of contaminants (biological, chemical, physical) in building materials, different products or on any other surface.

Our services can be completed with the development of a quote for decontamination.



COSMETICS, PHARMACEUTICALS AND NATURAL HEALTH PRODUCTS



Natural health products

We offer microbiological and chemical analysis services such as:

- > Microbiological analyses (purity) according to USP.
- > Heavy metals (Pb, As, Hg, Cr and Cd) by ICP-MS.
- > Complete nutritional labelling (vitamins, fat profile (including EPA-DHA), proteins, aflatoxins by ELISA.)

On request, we can manage all of your analytical requests (pesticides, solvent residues, active ingredients dosage.)

Our product analysis team for cosmetics, pharmaceutical and natural health products only uses recognized and validated pharmacopoeial methods. Our laboratory professionals will lend support for the quality control of your raw materials, bulk and finished products. Whatever your needs, our experts will meet your specifications and provide advice.

Our laboratories hold Drug Establishment Licences from Health Canada.



Our main services

For non sterile products

- > Microbial counts for various microorganisms according to harmonized pharmacopeias
- > Detection of pathogens

Identification

- > Bacteria, yeasts and molds

Antimicrobial efficiency

- > Challenge study
- > Study on the efficiency of antiseptics and disinfectants
- > Efficiency of antimicrobial tissues.

Process water

- > Water quality compliance with USP

Environment expertise

- > Microbiological control of surfaces
- > Microbiological control of ambient air and compressed air
- > Sampling and interpretation services



CHEMICAL ANALYSIS AND NUTRITIONAL LABELLING

Nutritional labelling

Environex Group laboratories offer you a personalized service to meet the requirements of nutritional labelling. Graduate chemists and microbiologists in science and food technology and technicians work together to offer a fast, personalized and comprehensive service. In addition to conducting analyses, we can prepare a Nutritional Facts table that meets the requirements of the Canadian Food Inspection Agency (CFIA).

A database for calculating the nutritional value of food is available to compile the nutritional values of all dishes listed in a restaurant menu. The use of a database reduces the analysis cost. The Environex Group laboratory specialists will help you target the parameters, dishes or foods that require laboratory analysis which combined with the database provide the most accurate results possible.



Chemical analyses

We offer a wide variety of chemical tests for food products, including:

- > Verification of raw materials and quality control of finished products:
 - > Water activity (Aw)
 - > Ash
 - > Cholesterol
 - > Total dietary fiber
 - > Carbohydrate - Energy
 - > Total fat
 - > Humidity - Total solids
 - > Peroxide
 - > Minerals (Ca, Na, K, Fe)
 - > Sodium nitrites
 - > Analysis of components for U.S. and Canadian nutritional labelling
- > Bone particles
- > pH
- > Piperine
- > Fat profile
- > Protein
- > Salts
- > Sugars

- > Specific fatty acid content
 - > Saturated
 - > Monounsaturated
 - > Polyunsaturated
 - > Trans
 - > Omega-3 and Omega-6
 - > And more...

- > Vitamin analysis
 - > A (retinol, beta-carotene)
 - > B (B1, B2, B3, B5, B6, B8, B9, B12)
 - > C (ascorbic acid)
 - > D (ergocalciferol, cholecalciferol)
 - > E (tocopherols)

Valeur nutritive	
par 1 tasse (pâtes sèches) (88 g)	
Teneur	% valeur quotidienne
Calories 300	
Lipides 1,5 g	2 %
saturés 0,2 g	1 %
+ trans 0 g	
Cholestérol 0 mg	
Sodium 2 mg	0 %
Glucides 61 g	20 %
Fibres 2 g	8 %
Sucres 0 g	
Protéines 11 g	
Vitamine A 0 %	Vitamine C 0 %
Calcium 2 %	Fer 0 %

The above list is not complete, therefore, contact Environex Group laboratories to enquire about the full range of available analyses.

FOOD ALLERGENS AND TOXINS

Allergens and toxins

EnvironeX Group was one of the first laboratory recognized by the Canadian Standards Council for allergen detection.

We offer the following detections:

- > Almonds
- > Peanuts
- > Gluten
- > Milk
- > Hazelnuts
- > Walnuts
- > Eggs
- > Sesame
- > Soy
- > Sulfites
- > Mustard
- > Others on demand

Failure to disclose these ingredients or their derivatives in the ingredients list of a product can have serious consequences on the health of the population at risk. The ELISA technology (enzyme-linked immunosorbent assay) used provides sensitive, recognized, validated and fast methods. It also enables the verification of species such as:

- > Pork
- > Beef
- > Poultry

We also offer toxin detection services. For example, the enterotoxin of *Staphylococcus aureus* and aflatoxin are considered natural toxins that can cause health problems.

Aflatoxin is produced by various moulds, including *Aspergillus flavus* and *Aspergillus parasiticus* when favourable temperature conditions and humidity allow them to grow.

Aware of changes in market requirements and technological developments, EnvironeX Group laboratories offer a wide range of tests for allergen and toxin components detection to ensure the quality sought by consumers.



INSPECTION PROGRAMS AND QUALITY MANAGEMENT

Inspection programs

EnviroX Group's inspection and audit programs focus on restaurants, grocery stores inspection and programs food services. These preventative programs are put in place to verify compliance with the requirements of the regulators and internal company standards.

The program includes a full report including hazard assessment, as required:

- › On the spot training during visits
- › Validation of cleaning methods by sampling surfaces
- › Complaint management for food-borne diseases
- › Food sampling for microbiological and chemical analysis
- › Statistical analysis
- › Recommendations / Action Plan
- › Data management web platform



Quality systems implementation

Quality programs tailored to meet the needs of various industries such as bakery, distribution, fast foods, confectionery, manufacture of food containers.

1. HACCP
2. GFSI (BRC, FCSS 22000, SQF, IFS)
3. Allergen control
4. Plant specific quality assurance programs

Quality diagnostics

Quality system diagnostic to determine your status in relation to a quality standard (HACCP or others) and implementation of an action plan.

Audit program

Supplier audits ensure compliance and respect of requirements to obtain ingredients that meet your criteria and specifications.

Internal audits prepare you for certification audits and improve your quality system.

Training program

Customized training that target the specific needs of your employees.

Our team of experienced trainers use a dynamic and interactive approach.

Examples of training offered:

- › Good Manufacturing Practices (GMP) tailored to the company
- › Allergen Control
- › Training in hygiene and food safety for operators and managers of food establishments (MAPAQ)
- › Introduction to HACCP principles for production employees
- › Development of HACCP system for managers and the HACCP team.

Consultation

Graduates in science and food technology are available to advise you on your manufacturing processes, regulations, possible causes of product contamination, the environment, improving the lifecycle of your products, identification of foreign matters, allegations or any other matter related to the food industry.

MICROBIOLOGICAL ANALYSIS OF FOOD PRODUCTS



Thanks to fast and responsive technologies, our laboratories can detect a minute number of targeted cells in a sample, to better protect the public.

Available analyses:

- > *E. coli* O157:H7
- > *Listeria monocytogenes*
- > *Listeria spp*
- > *Salmonella spp*
- > *Staphylococcus aureus* and enterotoxins
- > Other pathogens on demand



Establishing the lifecycle of your products

- > Suggestions on the testing protocol and results interpretation
- > Product management and analysis monitoring
- > Warehousing your products in controlled conditions
- > Professional advice to meet your needs.

Microbiological analysis

Full-service analysis for food products and environmental samples:

- > Total bacterial count
- > *Escherichia coli*, including O157:H7
- > Yeasts and molds
- > *Listeria monocytogenes*
- > *Listeria spp*
- > *Clostridium perfringens*
- > *Pseudomonas aeruginosa*
- > Total coliforms and faecal
- > *Staphylococcus aureus*
- > *Salmonella spp*
- > Lactic acid bacteria
- > *Bacillus cereus*
- > Probiotics
- > Identification of micro-organisms
- > Other micro-organisms upon request.

Rapid detection methods to serve the food industry

Analysis by polymerase chain reaction (PCR) or immunoenzymatic reaction (immunology)

Analyses by immunology (example: Vidas) and PCR (eg BAX) allow to search for microorganisms by the detection of DNA or immunological characteristics. Each species has its own characteristics, as in a fingerprint.

EnvironeX Group laboratories offer consulting services and diagnostic tools to food companies. We're here to help, either to determine the safety of food, identify contaminants and to meet requirements in terms of nutritional labelling or quality control. We play a role at every step of the production line and our experienced staff can help you ensure the quality of your products.



AGRICULTURAL ANALYSIS

The agricultural chemistry section of Environex Group agrifood laboratory provides comprehensive in-laboratory food and feed testing services for all analytical tests required by a farming enterprise.

Nutrition

Forage/grain

Forage tests are performed using chemical or infrared analyses on various categories of forage, including:

1. Hay such as gramineae, legumes, cereal hay
2. Silage made from gramineae, legumes, corn, soybeans, cereal hay, with or without fermentation
3. Grains such as corn, wet or dry barley, oats, wheat, soybeans

Chemical analyses

Routine analyses

- > Crude protein
- > ADF
- > Potassium (K)
- > Calcium (Ca)
- > Magnesium (Mg)
- > Dry matter
- > Where available: energy, estimated NDF, estimated UNT, VRF

Additional analyses

- > Lignin (ADL)
- > ADF-N, NDF-N
- > Silage pH
- > Ash, fat
- > Crude fibre
- > Chloride, nitrate sulfur
- > Heavy metals (by metal): Al, As, Cd, Co, Cr, Hg, Ni, Pb, Se
- > Toxin group (aflatoxin, T-2 toxin, vomitoxin, zearalenone - official test)

4. Other, such as dry or wet corncobs, pasture

Infrared analysis

Thirty parameters are available and applicable based on the type of grain and forage. Contact our customer service for more information.

Livestock feed

Livestock feed includes oats, wheat, canola, corn, barley, forage crops, peas, soybeans.

Main analyses available:

- > Grain size
- > Brix
- > Insoluble impurities
- > Urease activity
- > Urea
- > Homogeneity of the mixer

All previously mentioned analyses for forages/grains are also offered.

Fertilization

Field (Mehlich III) or greenhouse (SSE) soil

Soil analyses (Mehlich III) allow for the monitoring of soil fertility, including the Agro-Environmental Fertilization Plan (AEFP). We perform basic analyses as well as those for trace elements. Additional analyses are available on request (e.g., grain size, boron, nitrates).

Paramètre(méthode)	Résultats sur sol séché	Très pauvre	Pauvre	Bon	Très Bon	Riches	Très Riches
CEC estimée	14.9 meq/100g						
pH eau (1:1)*	6.3						
pH tampon*	7.0						
Indice en chaux	70						
Ca (Mehlich III)*	3754 Kg/ha						
Saturation Ca	56.2 %						
P (Mehlich III)*	115 Kg/ha						
ISP1 (P/Al)	6.4 %						
Al (Mehlich III)*	803 ppm						
K (Mehlich III)*	164 Kg/ha						
Saturation K	1.3 %						
Mg (Mehlich III)*	446 Kg/ha						
Saturation Mg	11.1 %						
Matière organique (comb.)*	3.2 %						
Saturation -K+Mg+Ca	68.6 %						

Organic and mineral fertilizer, residual fertilizer

Fertilizer residuals are made up of industrial or municipal wastes such as sludge from the treatment of wastewater (also known as biosolids), cement dust and wood ash.

We can test for the following parameters:

- > Dry matter, nitrogen (N), phosphorus (P), potassium (K)
- > Organic matter, estimated C/N ratio
- > Ammoniacal nitrogen, NH₄/N ratio, calcium (Ca), magnesium (Mg)
- > Available phosphorus (P₂O₅), total and inorganic soluble potassium (K₂O), QCI
- > Agricultural Index
- > Grain size, neutralizing capacity, metals and contaminants, trace elements.

Water and fertilizing solution

Our environmental laboratories can check for virtually all the parameters you could ever require, including:

- > Standard analysis: pH, conductivity, P, K, Ca, Mg, hardness, Na, B, Cu, Fe, Mn, Zn, S in SO₄, nitrate;
- > Drinking water for animals: pH, conductivity, P, K, Ca, Mg, hardness, B, Cu, Fe, Mn, Zn, S in SO₄, alkalinity, chloride, nitrate;
- > Microbiology: total and fecal coliforms, fecal streptococci, total bacteria (AAHB).



Plant tissue (foliar)

We can test for the following parameters:

- > Total calcium (Ca), total magnesium (Mg), phosphorus (P), potassium (K), nitrogen (n), boron (B), copper (Cu), iron (Fe), manganese (Mn), zinc (Zn).

Parameter (method)	Results and unit at 100% dryness	Insufficient	Sufficient	Excessive
Total calcium (Ca) (calcination)	2.76%	[Orange bar]		
Total magnesium (Mg) (calcination)	0.13%	[Green bar]		
Total phosphorus (P) (calcination)	0.31%	[Green bar]		
Total potassium (K) (calcination)	1.44%	[Green bar]		
Total nitrogen (N)	5.2%	[Green bar]		
Total boron (B) (calcination)	71.5 ppm	[Orange bar]		
Total copper (Cu) (calcination)	9.3 ppm	[Green bar]		
Total iron (Fe) (calcination)	108.4 ppm	[Green bar]		
Total manganese (Mn) (calcination)	86.0 ppm	[Green bar]		
Total zinc (Zn) (calcination)	71.9 ppm	[Orange bar]		

Mycotoxins

Mycotoxins are part of the natural toxic contaminants and our laboratories offer a full range of analyses.

Two techniques are used, rapid analysis using the immuno-enzymatic method (ELISA) and chromatographic analysis in high performance liquid phase (HPLC.) The ELISA method allows for a shorter analysis delay in 24 hours. HPLC analysis is more accurate and provides a lower detection.

Main mycotoxins offered by our laboratories:

- > Deoxynivalenol (Vomitoxine)
- > Zearalenone
- > Aflatoxin
- > Ochratoxin
- > T-2 toxin
- > HT-2 toxin
- > Fumonisma
- > Patulin
- > Others upon request.

With more than 50 years of experience in agriculture, we offer a wide range of tests to meet your needs.

QUALITY POLICY

Our mission is to improve quality of life and conserve the environment. EnvironeX Group hopes to become the reference in terms of laboratory services by putting the emphasis on innovation, accuracy and respect in order to offer its clients, employees and partners services that meet the industry's highest standards.

Our commitment towards our clients

EnvironeX Group offers its private, commercial and industrial clients the most diversified range of chemical and microbiological analyses available in the environmental, agrifood, and health and pharmaceutical sectors.

EnvironeX Group employs the industry's highest quality standards in terms of rapid execution and accurate results in order to help its clients achieve their goals and contribute to the success of their company.

Since our clients are our highest priority, we strive to consistently offer a friendly, personalized and confidential service. EnvironeX Group welcomes any feedback that could help us analyze and rethink our methods and improve our procedures with the sole purpose of providing our clients with services of the highest quality.

«Always do what is required to provide our clients with the highest quality of services.»



Our commitment towards Quality

EnvironeX Group is committed to:

- Meeting all our clients' needs and expectations in order to win and maintain its trust, in terms of quality and deadlines to maintain our competitive advantage and our leading position in a challenging market environment;
- Constantly satisfying and improving upon the requirements of our Quality Management System through the adoption and implementation of relevant control programs and compliance with the industries best professional practices;
- Complying with and taking all necessary steps to keep the ISO/CEI 17025 International Certification and respecting the conditions for maintaining our Health Canada Establishment Licence;
- In terms of procurement, ensuring that suppliers having an impact on quality are selected and assessed on their ability to provide products and services that meet our requirements as well as highest quality standards;
- Ensuring that our employees have the necessary skills, education, training, knowledge and/or experience to meet the highest quality standards;
- Ensuring that our employees have no conflict of interest and are not under any pressure or influence, whether commercial, financial or otherwise, internal or external, direct or indirect, capable of calling into question the quality of his work, the integrity of their colleagues and the reputation of EnvironeX Group.



This policy – as well as all other documents, policies and procedures included in our quality management system – will be communicated within the company and the necessary steps will be taken to ensure that it is understood and applied in a consistent manner.

August 2015

Marc Hamilton, Microbiologist, RMCCM
Chief Executing Officer



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