

Source Testing

Introduction

LEHDER has sophisticated state-of-the-art instrumentation and a staff of experienced professionals available to perform source emission projects of any size and complexity. Stack sampling at an industrial source is conducted for a number of reasons such as:

- To satisfy testing conditions described in facility permit and approvals
- To develop accurate emission inventories and emission factors
- To understand and adjust industrial processes
- To determine pollutant impacts from specific sources

Stack Sampling Test Methods

Stack sampling test methods follow procedures and techniques described in provincial, state, federal and USEPA source testing codes. There are numerous recognized test methods for measuring industrial stack emissions. Some of the test methods used by LEHDER to evaluate source emissions and effluent parameters include:

- Methods 1-5: Determination of particulate emissions from stationary sources
- Method 5A: Determination of particulate emissions from the asphalt processing industry
- Method 5E: Determination of particulate emissions from the wool fiberglass industry
- Method 6: Determination of SO₂ emissions from stationary sources
- Method 6C: Determination of SO₂ emissions from stationary sources (analyser method)
- Method 7: Determination of NO_x emissions from stationary sources
- Method 7E: Determination of NO_x emissions from stationary sources (analyser method)
- Method 8: Determination of sulfuric acid mist and sulfur dioxide
- Method 9: Determination of visible emissions
- Method 10: Determination of carbon monoxide
- Method 12: Determination of inorganic lead emissions from stationary sources
- Method 13A: Determination of total fluoride emissions (SPADNS zirconium lake method)
- Method 13B: Determination of total fluoride emissions (specific ion electrode method)
- Method 17: Determination of particulate emissions (in-stack filter technique)
- Method 18: Measurement of gaseous organic compound emissions by GC
- Method 22: Determination of visible fugitive emissions
- Method 23: Determination of dioxins and furans from stationary sources
- Method 25A: Determination of total gaseous organic concentration using an FID
- Method 26: Determination of HCl emissions from stationary sources
- Method 26A: Determination of hydrogen halide and halogen emissions
- Method 29: Determination of metals emissions from stationary sources
- Method 201A: Determination of PM₁₀ emissions
- Method 202: Determination of condensable particulate emissions
- Method 206: Determination of ammonia emissions
- Method 316: Determination of formaldehyde emissions
- CARB Methods, BAAQMD Methods, Environment Canada Methods, Ontario Odor Method

CEMs

Continuous Emission Monitors (CEMs) are used to collect real time data for various parameters such as O₂, CO₂, CO, NO_x, SO₂, THC and flow.

LEHDER has broad experience with:

- **EPS 1/PG/7** – Ensuring facilities meet requirements of the Environment Canada “Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation”.
 - **CEM Certification Tests** – Performing Certification tests on CEMs.
 - **R.A.T.A.** – Conducting Relative Accuracy Test Audit and Bias programs.
 - **Audits** – Independent Audits of CEMs QA/QC Manuals.
 - **Writing** – Creating custom CEMs QA/QC Manuals.
 - **C.G.A.** – Assistance with Cylinder Gas Audits.
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Extractive FTIR

Several advantages are associated with the use of an **Extractive FTIR** monitoring system. For example:

- **Multiple gaseous pollutants** can be measured simultaneously with a single instrument.
- Pollutant/gas parameter data is acquired on a "**real time**" basis

Field applications using the FTIR monitoring system include:

- **Process** (material trials, process optimization, control equipment efficiency testing)
 - **Environmental** (source screening, compliance assurance monitoring, emission factor development, supporting emission inventories i.e. NPRI and SARA TRI, permit compliance testing)
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Odour Sampling and Evaluation

LEHDER has developed a unique phased approach to odour investigations to ensure that the problem is clearly understood and solutions are developed that address the root cause of the odourous emissions. Part of the evaluation consists of the collection and analysis of odour samples.

Samples are collected using the LEHDER Predilution system to maintain sample integrity by minimizing the loss of odourants by adsorption and/or condensation, as well as to minimize sample oxidation during transport and storage.

Odour measurements are conducted using the calibrated LEHDER Dynamic Dilution Olfactometer and an eight-person odour panel. The Olfactometer is a ternary port system operated in a forced choice mode as described in ASTM 679-91.

This is the only mobile olfactometer recognized by the Ontario MOE.

Related Air Quality Services

The Air Quality Management Services provided by LEHDER include:

- Regulatory Negotiations and Strategic Planning
- Applications for Permits, Licenses and Certificate of Approval
- Source Testing (Air)
 - Compliance
 - Engineering/Process Evaluations
- Odor Evaluations
 - Compliance Odor Testing and modeling
- Dispersion Modeling
 - Ontario Reg. 346
 - AERMOD, ISCPrime
 - Screen 3
- Preparing Source and Emission Inventories
- Annual Emission Inventories
 - NPRI
 - GHG Reporting

For further information

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About LEHDER

LEHDER Environmental Services Limited is one of the largest Air Quality Management consulting companies in Canada.

The LEHDER Emissions Testing Team is one of the largest and most experienced in Canada and is recognized by Canadian and U.S. regulatory agencies. The Team has a combined experience of over 100 years in the source testing field. Three of the LEHDER Principals are field leaders and source testing project managers; Mike Denomme, Daryl Zander and Peter Pakalnis.

LEHDER's multidisciplinary team of consulting professionals includes engineers, scientists, information management specialists, industrial hygienists, biologists and technologists; we work together to provide totally integrated environmental, health and safety solutions to industrial and municipal clients throughout North America.

The Head Office for LEHDER is located in Point Edward, Ontario and our Western division is based in Edmonton, Alberta.

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