ORTECH Environmental

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Odour Assessment

Overview, Facilities and Applications

Overview

Odour emissions from industries are a fairly common occurrence. A wide range of industrial activities are prone to odour "nuisance" which may impact the neighboring community or pose an on-site problem. ORTECH has been providing odour assessment services for over 25 years to the industrial sector such as, chemical, petroleum, automotive, food, agricultural and general manufacturing and the government sector, such as wastewater treatment plants and landfill sites. Our clients have benefited from ORTECH's proven expertise in this complex air quality area.

Facilities

Odour Evaluation Laboratory

ORTECH houses Ontario's only permanent odour evaluation facility which features fixed panelist stalls, a high air exchange rate and an air supply filtered to remove potentially odorous background organics. Standard protocols for operation and evaluation are adapted from international procedures. The facility is recognized and accepted by the Ontario Ministry of Environment. Within our facility, a dynamic dilution olfactometer system presents diluted air samples to an eight person panel simultaneously. Dilution levels are sequentially reduced until all panelists can detect an odour repeatedly. The statistical dilution level at which 50% of the panelists can just detect the odour is used to calculate the odour threshold value (OTV) of the original air sample.

Portable Olfactometer and Monitors

A portable version of ORTECH's olfactometer can be used for projects involving evaluation in the field. The system can be also used for screening and training of potential field inspectors. In addition, odour evaluations are supported by ORTECH's fixed laboratories including gas chromatography for applications such as sulphur compound speciation, and mobile continuous emission monitors.

Benefits

- **Accepted Regulatory Compliance**
- **Odour Control**
- **Positive Community Relations**
- **Planning and Prevention**
- **Product Evaluations**

Applications

ORTECH provides professional odour services including:

Odour Emission Measurements
Odour emission rates can be estimated by collecting air samples and determining the odour threshold values (OTVs) using sensory evaluation techniques. Air samples are usually collected by the dilution sampling procedure, which minimizes the loss of odorants by adsorption, condensation or oxidation. For open sources, odour sampling might be conducted using a lung or flux chamber technique. OTVs are used in conjunction with volumetric flow rates to calculate odour emission rates from the source.

Community Odour Surveys
When many emission points or fugitive sources contribute to community odour complaints, trained observers are deployed in a structured evaluation protocol throughout the community. Observers record the intensity and character of odours. The data from this assessment can be interpreted to determine potential sources and impact of the odour. The resulting data can also be used to confirm odour dispersion modelling results.

Odour Control and Prevention
ORTECH works with suppliers and users of solvents, paints, and coatings to provide estimates of odour emission reductions through the use of alternate formulations. We use bench-scale testing of chemicals and technologies to determine their odour reduction potential using an odour panel. ORTECH also evaluates odour control equipment to determine removal efficiencies. ORTECH's multi-disciplinary approach is an important step in making odour prevention possible.

Odour Dispersion Modelling and Odour Prediction
To better evaluate the odour potential from facilities and process changes, ORTECH uses advanced dispersion models such as ISCST3/Screen3, ISCPrime and AERMOD. The models predict the maximum off-property odour concentrations, plotted as isopleths overlain on topographical maps of the surrounding area. Locations of community complaints can be plotted and correlated with modeled results. The frequency and severity of odour threshold exceedence in the community can be predicted to help industry with abatement planning.

Materials Testing
A wide range of items can be odour tested using human panelists and closed-chamber or off-gassing techniques. Materials include auto parts, insulation samples, furniture and carpets, etc. Odour evaluations assist manufacturers to predict consumer acceptance of new products, or can be used forensically such as by insurers following smoke and water damage.

For more information, please contact our Environmental Access Line

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