



# ODOUR

Odour measurement and analysis is becoming an increasingly important area for managers involved with environmental matters. The measurement of odours is a highly complex issue. Many odorous emissions consist of a mixture of different compounds. The response of the human nose is highly subjective. Different people have widely varying responses to specific odours. The sensitivity of individuals decreases with age, smoking and prior exposure to an odour.

Organics has a wide experience in the identification of odour sources and their remedy. Organics possesses a wide range of methods, techniques and technologies that may be employed to identify and remedy specific odorous situations.



## THE ODOUR TRAIL

### The route to odour treatment

- i. Data collection
- ii. Source identification
- iii. Source analysis
- iv. Solution design
- v. Solution installation

#### **Data collection**

All available data should be collected and studied to determine whether any critical information is missing and to ensure that the position on the ground is clear.

#### **Source identification**

Source identification may be obvious, in the case of a flue or vent, or highly complex, in the case of a petro-chemical facility with tall stacks. Available techniques for source identification include tracer gas studies, dispersion modelling, and odour panels.

#### **Source analysis**

Once identified a source must be analysed to determine the nature of the odours and possible mitigation measures.

#### **Solution design**

A wide range of technologies may be brought to bear on odour treatment. These include biological, physio-chemical and mechanical/process methods.

#### **Solution installation**

This will result in the odour source being removed.

## MODELLING OPTIONS

### Bouyant Line and Point Source Model

A Gaussian plume dispersion model designed to handle unique modelling problems associated with industrial sources where plume rise and downwash effects from stationary line sources are important.

### CALINE3

A steady-state Gaussian dispersion model designed to determine air pollution concentrations at receptor locations downwind of "at-grade," "fill," "bridge," and "cut section" highways located in relatively uncomplicated terrain.

### Climatological Dispersion Model

A climatological steady-state Gaussian plume model for determining long-term (seasonal or annual) arithmetic average pollutant concentrations at any ground-level receptor in an urban area.

### Complex Terrain Dispersion Model Plus Algorithms for Unstable Situations

A refined point source Gaussian air quality model for use in all stability conditions for complex terrain. The model contains, in its entirety, the technology of CTDM for stable and neutral conditions.

### Industrial Source Complex Model

A steady-state Gaussian plume model which can be used to assess pollutant concentrations from a wide variety of sources associated with an industrial complex.

### Offshore and Coastal Dispersion Model

A straight line Gaussian model developed to determine the impact of offshore emissions from point, area or line sources on the air quality of coastal regions.



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### Data collection

There are many sources of data which can be accessed to assist with understanding an odour situation. These include meteorological databases, geographical information, public records, waste origination data, process information, and many more. Indeed one of the main requirements is to decide which information will be relevant. In situations where data is in short supply, it may also be necessary to gather information from the field in order to assist with source identification.

The data collection phase should end with a summary of available data and an indication of its relevance to the resolution of the odour issue being addressed.

### Source identification

This stage in the process may sometimes be evidently unambiguous. Where a waste processing facility is located in an urban area, or a single-source industrial process is emitting a visible odorous plume, the question of source identification may be simple.

In other cases, where, for example, there are many industrial processes operating in a single location or an extended system of raw product treatment and modification results in odours emitting from stacks, the

source may not always be immediately apparent.

A great deal of expense may be avoided by ensuring that the odour source is clearly identified early on in the resolution process.

### Source analysis

Once the source has been established it is necessary to develop a clear understanding of the mechanisms that lead to the production of the target odours. It is often the case that relatively simple modifications to a process can remove an unacceptable odour completely. Where this is not possible, a comprehensive analysis of the source will lead to the most appropriate technological solution.

### Solution design

Once the basis of an odour is established and understood the development of engineering solutions brings into play a wide array of odour control technologies. Organics is able to offer the majority of viable technologies. These include, but are not limited to, thermal oxidation equipment, scrubbing and stripping plant, biofiltration, carbon adsorbers, pressure swing adsorbers and ozone plant.

Please contact us for further information or visit our website.

