

# Application Article 206

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## TVOC provides low-level operator protection at oil and gas plant

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**Product:** TVOC

**Industry:** Petrochemical

**Application:** Monitoring air intakes for control rooms and toxic refuge

**Customers:** Petroleum Oil and Gas Suppliers

### Introduction

The need for monitoring on-site control rooms and toxic refuge has been a long established application for fixed gas detection. It is usual that explosive gases are detected by catalytic style detectors, measuring LEL levels. Although this procedure is working, there is raised awareness to detect personal levels, protecting workers from harmful emissions.



### Examples Of Problems Found

It has been found that normal alarm levels of gases found within such applications far exceed COSHH levels set out by current EH40 guidelines. For example, the normal alarm level of Pentane gas currently stands at 20% LEL. This value relates to 1400ppm actual value, which surpasses the current COSHH level of 600ppm.

### Action Taken

In response to this, a major petroleum oil and gas company have installed TVOC within their control room to keep target levels below 100ppm. TVOC has been fitted to the air intake to continuously monitor the air that enters the room. The unit is to be used in conjunction with other detectors, and will be linked into their automated shutdown system.

### How TVOC Is Used

TVOC may be fitted directly onto the stack (pictured left) providing temperature, humidity and dirt levels allow. Simple sample systems can be used, utilising the optional flow cell adaptor.

This procedure may also be used with a fixed bump adaptor, so the operator can gas check / calibrate the system without removing the unit from the stack.

Note: Pentane is an example of one gas that may be found within this application. The operator should consider all potential threats of explosive and toxic gases including Hexane, Ethylene and other Hydrocarbons.

### Key Features Include

- Humidity resistant PID
- Diffusive monitoring – no pump required
- Selectable detection range of 0 – 100 ppm or 0 – 1000 ppm
- Scaled 4 – 20 mA analogue output
- Includes a 10.6 eV lamp
- Detector life extended using patent pending feature
- Intrinsically Safe for use in hazardous areas
- Easy access PID sensor for very simple servicing
- Digital numerical display
- Simple calibration procedure

- Operates at 5 to 28V
- -20 – 50oC operating temperature
- LED and 4-20 mA output fault indication

### Typical Applications/Industries

TVOC has been designed for fixed continuous monitoring and is ideal for use in manufacturing and process industries where VOCs are typically present.

### Applications / Industries include:

- Pharmaceutical
- Chemical storage
- Plant analyser houses
- Cable tunnels & cable junction rooms
- Environmental emission applications (including Fence Line Detection)
- Indoor air quality monitoring
- Refineries and petrochemical plants
- Solvent recovery systems
- Waste water treatment plants
- Offshore oil rigs
- Pulp and paper manufacturing
- Industrial painting and coating



Ion Science manufactures and supplies gas detection, leak detection and corrosion monitoring equipment that exceed the needs of a wide range of industries and applications worldwide.

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