

# **Vertical Owlstone Vapor Generator**

Generate low ppb to high ppm concentrations of gases using permeation and diffusion tube technology



# What is it?

The Owlstone V-OVG is a system for generating precise, repeatable trace concentrations of gases. By using permeation and diffusion tube technology, a range of concentrations from low parts per billion to high parts per million levels can be achieved. The large permeation oven allows the use of up to 6 permeation tubes to create multiple-component mixtures, or a diffusion tube to generate high ppm concentrations.

# KEY FEATURES:

- High number of available compounds
- Generation of multiple gas mixtures
- Fast and easy sample replacement
- High accuracy and precision, even at lowest concentrations
- Can replace multiple expensive gas cylinders

#### How Do Permeation and Diffusion Tubes Work?

Permeation tubes allow the generation of vapor from solid and liquid sources, as well as gases. A small amount of the chemical is sealed inside a short length of plastic tubing. The analyte will permeate very slowly through the walls of the tube, at a rate dependent on the temperature of the tube. A flow of air or nitrogen is then used to dilute and carry away the permeating analyte.

Diffusion tubes work in a similar temperature-dependent way, but instead of permeating through plastic, the analyte diffuses straight out of the tube through a hole at the top (which may be covered with a membrane).





Figure 1 - Permeation Tube

Figure 2 - Diffusion Tube





#### V-OVG System Components

The V-OVG system utilizes the properties of permeation and diffusion tubes to provide controllable concentrations of calibration gases. The internal permeation oven controls the tube temperature to within 0.1°C over a range of temperatures from 30 to 100°C, ensuring accurate control of permeation rates. The internal mass flow controllers provide a calibrated flow of air or nitrogen through the permeation oven, for precise dilution of the permeating analyte.

# Complete Chemical and Environmental Testing

The V-OVG system can also be combined with other products in the GEN-SYS range, including the OHG-4 humidity generator and OFC-1 flow controller, to form an integrated test platform capable of generating an even wider range of test conditions.

# TECHNICAL SPECIFICATION:

| Technology  | Permeation and diffusion tubes   |
|---|--|
| Available analytes  | >500 including VOCs, environmental gases, explosive and CW agents and simulants  |
| Computer Communications   | RS-485 Optional  |
| Dimensions  | H 262mm, W142mm, D260mm  |
|   | 1/8" Swagelok Tube   |
| Sample Outlet Flow Rate   | 20-250 ml/min  |
| Exhaust Connection  | 1/4" Swagelok Tube   |
| Exhaust Flow Range  | 0-3000 ml/min  |
| Exhaust Pressure  | <30 psi  |
|   |  |
| Inlet Gas   | Regulated nitrogen/air, free from impurities,<br>-35°C dew point   |
| Inlet Gas<br>Inlet Connection   | Regulated nitrogen/air, free from impurities,<br>-35°C dew point<br>1/4" Swagelok quick connect  |
| Inlet Gas Inlet Connection Inlet Pressure   | Regulated nitrogen/air, free from impurities,<br>-35°C dew point<br>1/4" Swagelok quick connect<br>40 psi  |
| Inlet Gas Inlet Connection Inlet Pressure Output Concentrations   | Regulated nitrogen/air, free from impurities,<br>-35°C dew point1/4" Swagelok quick connect40 psiLow ppb/ppt - high ppm                                      |
| Inlet Gas Inlet Connection Inlet Pressure Output Concentrations Oven Diameter                                 | Regulated nitrogen/air, free from impurities,<br>-35°C dew point1/4" Swagelok quick connect40 psiLow ppb/ppt - high ppm40mm                                  |
| Inlet Gas<br>Inlet Connection<br>Inlet Pressure<br>Output Concentrations<br>Oven Diameter<br>Oven Temperature | Regulated nitrogen/air, free from impurities,<br>-35°C dew point1/4" Swagelok quick connect40 psiLow ppb/ppt - high ppm40mm30-100°C±1°C, in 0.1°C increments |