OLFACTORY ANALYSIS IN GAS CHROMATOGRAPHY — SMELLING YOUR ANALYSIS

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INTRODUCTION

The SGE ODO II is an olfactory detector, which can be fitted to any GC. The ODO II allows the effluent from a GC capillary column to be split between a nose cone (for smelling) and a mass spectrometer (for compound identification).

HOW DOES IT WORK?

The ODO II system incorporates a flexible heated transfer line for easy positioning of the nose cone away from hot zones on the GC. The heater itself is flexible and totally contained within the transfer line along with a separate channel carrying humidified air to the nose cone. **Figures 1** shows the transfer line and nose cone installed on an instrument.

The glass cone is purged with air that has been humidified by passing it through a reservoir containing water. Breathing in humidified air prevents the nasal mucous membranes from drying out over long periods and helps maintain olfactory sensitivity. The ODO II control unit contains an advanced humidifier with Fill, Purge and Drain functions and factory set air flow controller.

Figure 1. The Olfactory Detector control box, transfer line and nose cone.

Previously it was quite difficult to split the outlet of the column between two detectors when one of the detectors was an MS. A common limitation of using an olfactory and an MS detector simultaneously is maintaining identical elution times to both the nose cone and MS detector. This can make matching the peaks that smell to the corresponding mass spectrum quite difficult.

The ODO II solves this problem by introducing make-up gas at the exact point that the column flow is split between the two detectors.

This occurs inside the oven and ensures that the flow velocity to the Olfactory Detector is equal to the velocity of the flow to the MS.

This balances the time the compounds take to reach each detector. All of the components required to do this are supplied as standard.

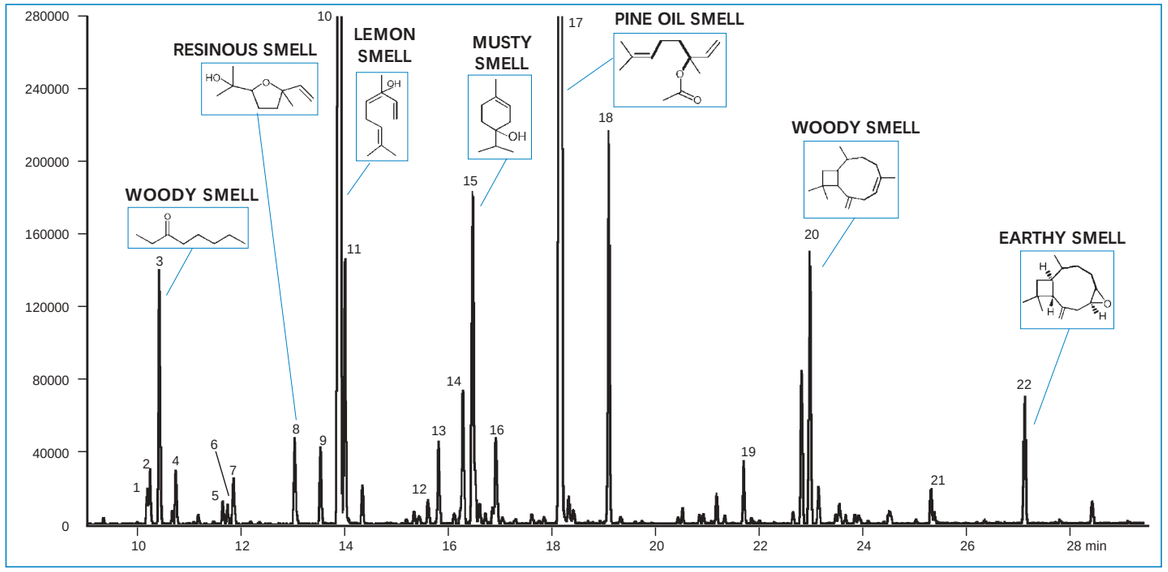
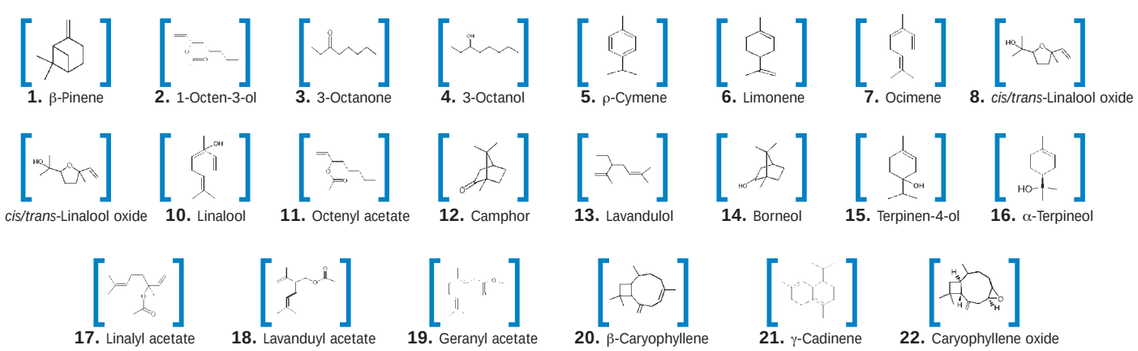


Figure 2. Tasmanian Lavender oil analyzed on a BPX5 30m x 0.25mm ID x 0.25µm film column ODO II **Part No: 093510**. Column **Part No: 054101**.



Main Compounds of Tasmanian Lavender Oil

APPLICATION

The use of the ODO II with a GC-MS can be a powerful tool. **Figure 2** shows a chromatogram of Tasmanian Lavender oil analyzed on a 5% Phenyl (BPX5) capillary column using the ODO II in conjunction with an MS detector. Each individual component was identified by its mass spectrum and the odor could also be described as the compound eluted from the column thus isolating which compounds were responsible for which types of odors.

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