

OLFACTORY DETECTOR OUTLET

“SNIFFER UNIT” – ODO II

- Identify components by odor or fragrance
- Ideal for cosmetics, flavors and fragrance industries

One of the most sensitive and intelligent detectors available to chromatographers is the human nose. For example, the human nose can detect Sulfur Dioxide, two orders of magnitude lower than any detector commercially available.

The Olfactory Detector Outlet (see **Figure 1**) is designed to take the outlet stream from a gas chromatograph and transfer it to a nose cone in which it is mixed with humidified air. This allows the human nose to identify individual components as they elute from the capillary column. It can be linked to a Mass Selective Detector to create a

powerful tool that can be used to identify almost any compound that has a fragrance. Both detectors can be used simultaneously and the compounds can be smelled at the exact time they enter the MS, making it easy to identify individual compounds in complex mixtures like essential oils.

As can be seen in **Figure 2**, the major peaks of the chromatogram of the Tasmanian lavender were identified by their smell using the ODO II and simultaneously by GC-MS (**Table 1**) as they eluted from the column.

PRODUCT DATA



Figure 1. The new olfactory system incorporates a flexible heated transfer line for easy positioning of the nose cone away from the hot zones of the GC. This makes “sniffing” ergonomic and comfortable while ensuring each sample component is transferred to the cone without loss due to condensation or activity. The system also incorporates the control module, as shown.

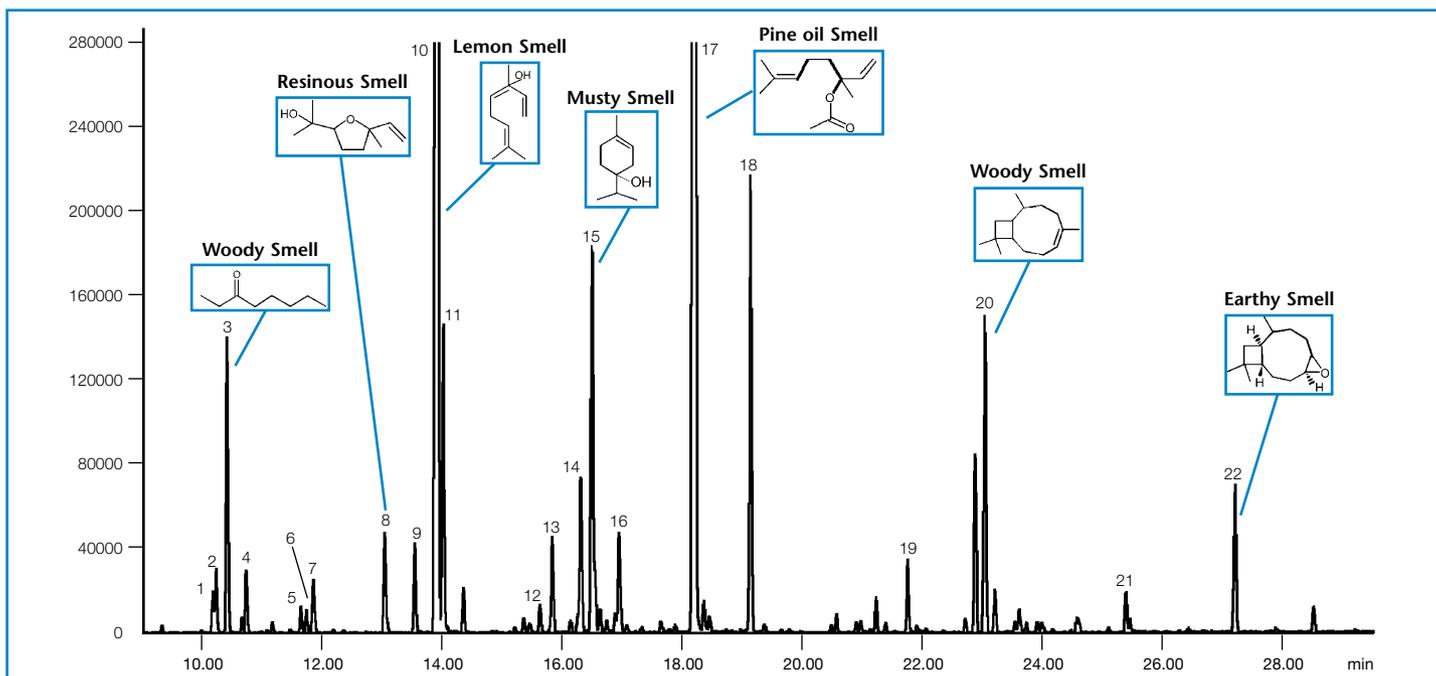


Figure 2. Tasmanian Lavender oil analyzed on a BPX5 30m x 0.25mm ID film column
ODO II Part No. 093700 Column Part No. 054141

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 Olfactory Detector control unit contains an advanced humidifier with Fill, Purge and Drain functions and factory-set air flow controller.

Previously it was quite difficult to split the outlet of the column between two detectors when one of detectors was MS. A common limitation of using an olfactory and MS detector simultaneously is maintaining similar elution times in both detectors. This can make matching the peaks that smell to the corresponding mass spectra 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 to the Olfactory Detector travels at the same speed as the flow to the MS. This balances the time the compounds take to reach each detector.

Another new development is the addition of a flexible, independently heated transfer tube. The nose cone can now be repositioned while the instrument is running to allow multiple users to adjust the outlet to a comfortable position. There are no wires or capillary tubing that have to be moved when doing so, everything is contained within the flexible tube so nothing can be damaged or broken. The heater itself is flexible and totally contained within the transfer line along with a separate channel carrying humidified air to the nose cone. **Figure 3** shows the internal design of the transfer line.

The ODO II is suitable for detecting odors in perfumes; flavors and fragrances; and off-odors in, for example, plastics and packaging. Add another dimension to your chromatography!

The ODO II can be fitted to all commercially available GCs.

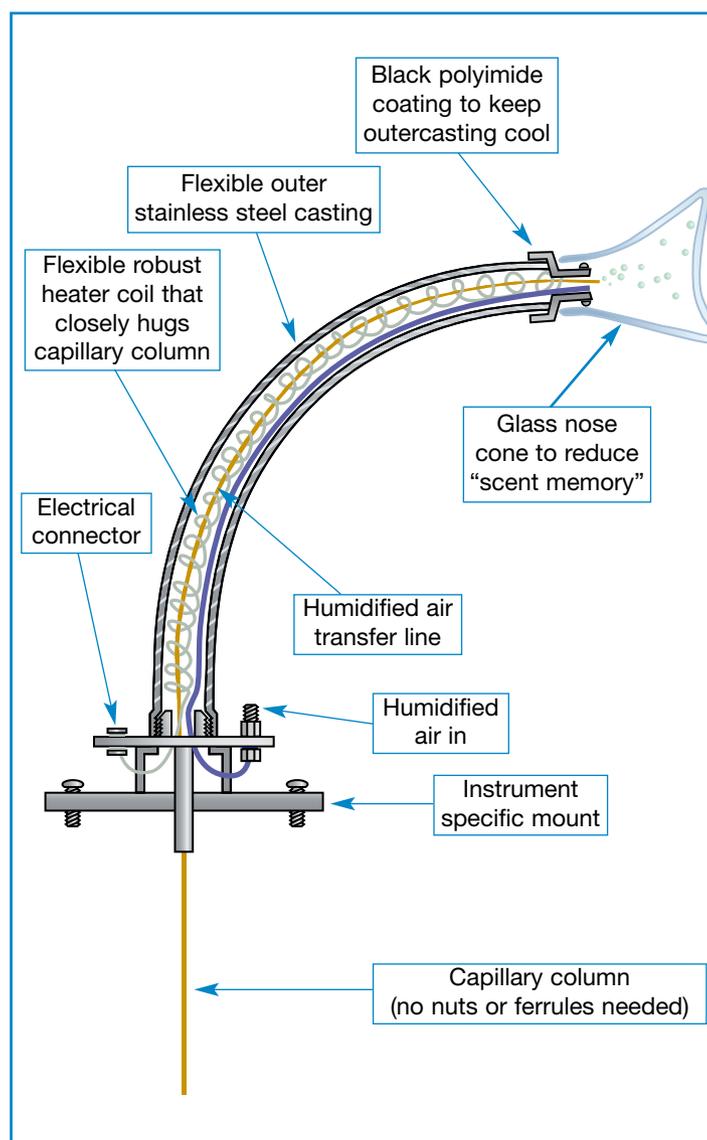
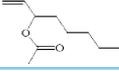
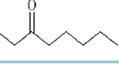
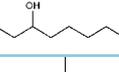
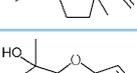
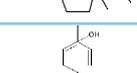


Figure 3. Internal design of the Olfactory Detector Outlet (ODO II)

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Table 1 - Main Compounds of Tasmanian Lavender Oil

No	Compound Name	Structure	No	Compound Name	Structure
1	b-Pinene		12	Camphor	
2	1-Octen-3-ol		13	Lavandulol	
3	3-Octanone		14	Borneol	
4	3-Octanol		15	Terpinen-4-ol	
5	r-Cymene		16	a-Terpineol	
6	Limonene		17	Linalyl acetate	
7	Ocimene		18	Lavandulyl acetate	
8	cis/trans-Linalool oxide		19	Geranyl acetate	
9	cis/trans-Linalool oxide		20	b-Caryophyllene	
10	Linalool		21	g-Cadinene	
11	Octenyl acetate		22	Caryophyllene oxide	

Ordering Information

Description

Part No.

ODO II

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SGE International Pty. Ltd.

Tel: +61 (0) 3 9837 4200
Fax: +61 (0) 3 9874 5672
email:support@sge.com

SGE Incorporated (USA)

Toll Free: 800 945 6154
Fax: +1 512 836 9159
email:usa@sge.com

SGE (France) Sarl

Tel: +33 (0) 1 6929 8090
Fax: +33 (0) 1 6929 0925
email:france@sge.com

SGE Deutschland GmbH

Tel: +49 (0) 6151 860486
Fax: +49 (0) 6151 860489
email:germany@sge.com

SGE Japan Inc.

Tel: +81 (45) 222 2885
Fax: +81 (45) 222 2887
email:japan@sge.com

SGE Australia Pty. Ltd.

Toll Free:1800 800 167
Fax: (03) 9874 5672
email:sales@sge.com

SGE Europe Ltd. (UK)

Tel: +44 (0) 1908 568 844
Fax: +44 (0) 1908 566 790
email:uk@sge.com

SGE (Italia) Srl.

Tel: +39 06 4429 0206
Fax: +39 06 4429 0724
email:sge.italia@tin.it

SGE China Service Centre

Tel: +86 (10) 6588 8666
Fax: +86 (10) 6588 6577
email:sge@bj.col.com.cn

SGE India

Tel: +91 (022) 471 5896
Fax: +91 (022) 471 6592
email: sgeindia@bom4.vsnl.net.in