

## Dräger Fumigation Test Set Dräger-Tubes

The Dräger-Tube® measurement system provides an easy method for testing containers and other spaces for the presence of fumigation agents. A specially developed measuring strategy allows for the detection of typical fumigation agents even when the chemical is unknown. The Dräger Fumigation Test Set can be equipped with all of the necessary components for this measurement.



ST-6756-2006

## Benefits

---

### Hazards caused by fumigants

To prevent goods from being damaged by animals such as insects and other disease carriers, containers are flooded with toxic or suffocating gases.

Fumigants are highly toxic and harmful to the health in many ways. To ensure adequate protection, the concentration of the fumigants used must be measured. This is relevant for all personnel present during:

- the start or finish of the fumigation process
- the opening of transport containers or other confined spaces
- the loading or unloading of fumigated products from transport containers
- the removal of fumigated goods from packaging materials
- transportation (in case of leakages)

Suitable measurement instruments are used to determine the type and concentration of fumigants before opening a container or entering other spaces.

Thereby, it is important to check the Oxygen concentration in the container or other spaces. When inert gases have been used, they will displace Oxygen and this results in a very high probability of suffocation. A leakage in one individual package is one example of a relatively simple cause for this.

---

### Mobile and quick

The well-known Dräger-Tube measuring method is an easy way to perform measurements. In only a few minutes, the concentration of the fumigants within the container can be determined. Depending on the concentration measured, the decision can be made whether the container or space can be entered or ventilated.

Even when a container has not been declared correctly or the labeling is no longer legible, the Dräger measuring strategy will assist in the identification and detection of the fumigation agents.

---

### Easy to use

For several decades, Dräger-Tubes have been renowned for their ease of use and high degree of measurement accuracy. Even without special training, the Dräger-Tubes, which were especially developed for this application, provide reliable test results. Dräger-Tubes are ready for use at any time. All that is needed are the corresponding tubes, the Dräger accuro® hand pump, and the Dräger bar probe. By comparing the color change within the detector tube to the printed scale, an estimation of the concentration can be made.

---

### Recommended measurement strategy

If the fumigant is known, the corresponding Dräger-Tube is chosen and the measurement carried out as instructed. If the measurement result is too high, then the container or space should be ventilated. A new measurement should be taken at periodic intervals and, when the concentration is low enough, the container or

## Benefits

room can be released for entry. If the concentration detected is below the defined maximum limit, the container or room can be opened and entered.

The measurement of fumigants should take place while the container is still closed. To do this, insert the Dräger Bar Probe (order code 83 17 188) e.g. through the rubber seal of the container door. The probe should be used to lift the rubber seal of the container at its lowest point and pushed as far as possible into the container. The Dräger-Tubes should then be prepared for measurement and attached to the bar probe. The necessary pump strokes for the measurement should then be made by using the Dräger gas detection pump.

If the fumigant is not known, the use of the Dräger Simultest Fumigation is recommended to determine which chemical has been used. This test set allows for the measurement of five typical fumigation agents at the same time:

- Ammonia or Ethylene Oxide
- Methyl Bromide
- Hydrocyanic Acid
- Phosphine
- Formaldehyde

In addition, the following Dräger-Tubes should be used for the measurement of Ethylene Oxide, Carbon Dioxide, and Sulfuryl Fluoride:

- Ethylene Oxide 1/a Measuring range from 1 to 15 ppm
- Carbon Dioxide 0,1 %/a Measuring range from 0.1 to 1.2 Vol.-%
- Sulfuryl Fluoride 1/a Measuring range from 1 to 5 ppm

When one or more gases are present, the container or space should be ventilated with air before entry and individual Dräger-Tubes used to test the concentrations of the corresponding gases periodically.

If personnel should be equipped with personal air monitors for the measurement of Oxygen, Dräger offers a complete line of measurement and warning devices equipped with electrochemical sensors for this purpose.

To determine a potential risk of explosion, Dräger measurement and warning devices equipped with an infrared Ex-sensor should be used. Gas detectors that use catalytic ex-sensors are not appropriate as they do not operate in inert atmospheres.

## Ordering Information

Description	Order Code
Fumigation case (empty)	83 17 147
Gas detector pump – Dräger accuro®	64 00 000
Bar Probe 400 for the measurement of fumigants in containers <sup>1</sup>	83 17 188
Extension hose for Dräger accuro®, 1 M; 3.3 ft.	64 00 561
Adapter Dräger Simultest, consisting of cutting holder and adapter	64 00 090
Spare parts set for Dräger accuro®	64 00 220

<sup>1</sup> In order to use the Bar Probe 400 with the Simultest Set, two additional adaptors are necessary.

Dräger-Tube	Measuring Range	Order Code
Ammonia 5/a	5 – 600 ppm	CH 20 501
Benzene 0.25/a	0.25 – 10 ppm	81 03 691
Carbon Dioxide 0.1 %/a	0.1 – 6 Vol.-%	CH 23 501
Carbon Monoxide 10/b	10 – 3,000 ppm	CH 20 601
Chloropicrine 0.1/a	0.1 – 2 ppm	81 03 421
1,2-Dichlorethane (using Dräger-Tube Methyl Bromide 0.2/a)	2 – 8 ppm	81 03 391
Ethylene Oxide 1/a	1 – 15 ppm	67 28 961
Formaldehyde 0.2/a	0.2 – 5 ppm	67 33 081
Hydrocyanic Acid 0.5/a	0.5 – 50 ppm	81 03 601
Methyl Bromide 0.2/a	0.2 – 8 ppm	81 03 391
MITC 0.1/a (for the measurement of Methyl Isothiocyanate)	0.1 – 6 ppm	81 03 485
Oxygen 5 %/C	5 – 23 Vol.-%	81 03 261
Phosphine 0.01/a	0.01 – 1 ppm	81 01 611
Phosphine 0.1/c	0.1 – 3 ppm	81 03 711
Sulfuryl Fluoride 1/a	1 – 5 ppm	81 03 471
Toluene 5/b	5 – 300 ppm	81 01 661

**Dräger Simultest Fumigation** **81 03 410**

Measurement of	Scale Mark
Formaldehyde	1 ppm
Phosphine	0.1 ppm
Hydrocyanic Acid	10 ppm
Methyl Bromide	5 ppm
Ammonia	50 ppm

**Dräger Simultest Container Fumigation** **81 03 380**

Measurement of	Scale Mark
Formaldehyde	1 ppm
Phosphine	0.3 ppm
Hydrocyanic Acid	10 ppm
Methyl Bromide	0.5 ppm
Ethylene Oxide	1 ppm

## Notes

## Notes

Not all products, features, or services are for sale in all countries.  
Mentioned Trademarks are only registered in certain countries and not necessarily in the country in which this material is released. Go to [www.draeger.com/trademarks](http://www.draeger.com/trademarks) to find the current status.

**CORPORATE HEADQUARTERS**  
Drägerwerk AG & Co. KGaA  
Moislinger Allee 53–55  
23558 Lübeck, Germany  
[www.draeger.com](http://www.draeger.com)

**REGION DACH**  
Dräger Safety AG & Co. KGaA  
Revalstraße 1  
23560 Lübeck, Germany  
Tel +49 451 882 0  
Fax +49 451 882 2080  
[info@draeger.com](mailto:info@draeger.com)

**REGION EUROPE**  
Dräger Safety AG & Co. KGaA  
Revalstraße 1  
23560 Lübeck, Germany  
Tel +49 451 882 0  
Fax +49 451 882 2080  
[info@draeger.com](mailto:info@draeger.com)

**REGION MIDDLE EAST, AFRICA**  
Dräger Safety AG & Co. KGaA  
Branch Office  
P.O. Box 505108  
Dubai, United Arab Emirates  
Tel +971 4 4294 600  
Fax +971 4 4294 699  
[contactuae@draeger.com](mailto:contactuae@draeger.com)

**REGION ASIA PACIFIC**  
Dräger Singapore Pte. Ltd.  
25 International Business Park  
#04-20/21 German Centre  
Singapore 609916  
Tel +65 6308 9400  
Fax +65 6308 9401  
[asia.pacific@draeger.com](mailto:asia.pacific@draeger.com)

**REGION CENTRAL  
AND SOUTH AMERICA**  
Dräger Panama S. de R.L.  
59 East Street, Nuevo Paitilla  
House 30, San Francisco Town  
Panama City, Panama  
Tel +507 377 9100  
Fax +507 377 9130  
[servicioalcliente@draeger.com](mailto:servicioalcliente@draeger.com)

**REGION NORTH AMERICA**  
Dräger, Inc.  
3135 Quarry Road  
Telford, PA 18969  
Tel +1 800 4DRAGER  
(+1 800 437 2437)  
Fax +1 215 723 5935  
[info.usa@draeger.com](mailto:info.usa@draeger.com)

Locate your Regional Sales  
Representative at:  
[www.draeger.com/contact](http://www.draeger.com/contact)

