

MEASURING NEW FUMIGANTS WITH DRAEGER-TUBES®

Draeger Safety AG&Co.KG aA,
Germany
Frank Arnold
Email: frank.arnold@draeger.com
Fax: +49-451-882-72940

For close to 70 years, Draeger Safety has offered the well-known Draeger-Tubes®. The detection of gases and aerosols is the main focus with this system. Today, Draeger Safety offers more than 220 different tubes.

The Draeger Tubes® program works in an easy way, combining a precise pump with a glass tube filled with analytical chemicals. The measurement is made by drawing a definite volume of sample gas through the tube. Immediately after the measurement is finished, the concentration of the measured gas can be read on the detection layer of the tube. The chemical reaction inside the tube has left an easy-to-read stain.

The detection of fumigants is one of the most interesting markets for Draeger-Tubes®. Because of constraints and the decreased use of older products, new fumigants have to be developed for the future. Otherwise, a profitable production of crops, fruits and other plants is not possible.

A couple of new gases have received approval in several different countries. But only a cost efficient detection system helps to optimise the fumigation process.

Draeger Safety has focused on the development of new tubes for these gases.

New Draeger-Tube® for Sulfuryl Fluoride

This tube provides a measuring range of 1-5 ppm of Sulfuryl Fluoride. No cross sensitivities to other fumigants. A high temperature inside the tube cracks the molecules and the fragments can be detected specifically to the detection layer.

New Draeger-Tube® for Chloropicrin

A very low measuring range of 0.1-2 ppm covers the threshold limit value. There are no cross sensitivities to other fumigants.

New Draeger Tube for Ethylformate

A brandnew Draeger Tubes is designed for detection of Ethyl Formate. The TLV of 100 ppm worldwide is covered by a measuring range of 20-500 ppm. This tube shows no cross sensitivity to CO or CO₂. The detection of Ethylformate when using Vapormate® is possible.

All other Draeger-Tubes® for fumigants in an overview

Name	Order number	Measuring range
Phosphine 0.01/a	81 01611	0.01 to 1 ppm
Phosphine 0.1/a	CH 31101	0.1 to 4 ppm
Phosphine 1/a	81 01801	1 to 100 ppm
Phosphine 25/a	81 01621	200 to 10,000 ppm
Phosphine 50/a	CH 21201	50 to 1,000 ppm
Methyl Bromide 0.2/a	8103391	0.2-8 ppm
Methyl Bromide 0.5/a	81 01671	0,5 to 30 ppm
Methyl Bromide 3/a	67 28211	3 to 100 ppm
Methyl Bromide 5/b	CH 27301	5 to 50 ppm
Sulfuryl Fluoride 1/a	8103471	1-5 ppm
Chloropicrin 0,1/a	8103421	0,1-2 ppm
Ethyl Formate 20/a		20-500 ppm

Tabelle 1

Future developments for the next Draeger-Tubes®:

- MITC
- Carbonyl Sulfide
- Dicyanide
- Methyl Iodide
- Dichlor Propene
- Propylene Oxide