

## Ammonia 2/a

Order No. 67 33 231

### Application Range

Use in SimultanTest CO <sub>2</sub>	
Standard Measuring Range:	0.6 to 9 ppm
Test Volume:	1 L
Flow Rate:	0,2 L / min
Time for Measurement:	5 min
Standard Deviation:	± 25%
Color Change:	yellow → blue

### Ambient Operating Conditions

Temperature:	10 to 50 °C
Absolute Humidity:	max. 20 mg H <sub>2</sub> O / L
Pressure:	The tube may only be used for depressurized compressed air

### Reaction Principle

NH<sub>2</sub> + pH-indicator → blue reaction product

### Cross Sensitivity

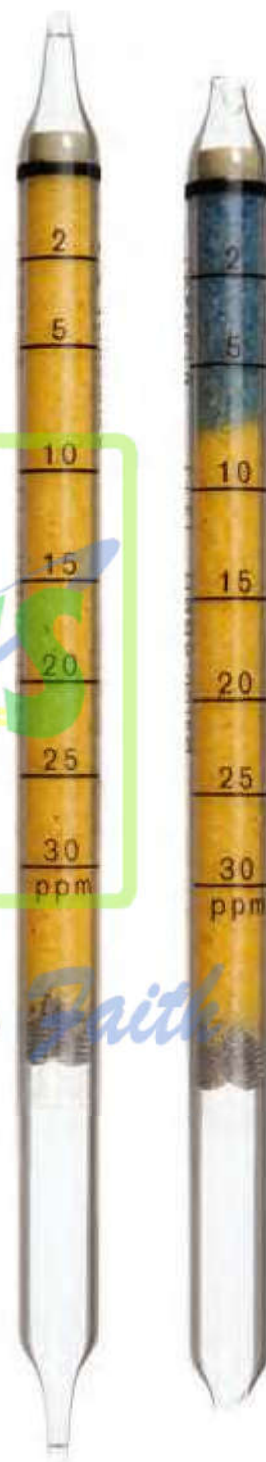
Other basic substances such as organic amines are indicated as well.

The indication is not affected by

- 300 ppm nitrous fumes
- 2,000 ppm sulfuric dioxide
- 2,000 ppm hydrogen sulfide

### Evaluation

Reading on scale x 0.3 = ppm ammonia



D-13316-2010

# Carbon Dioxide 100/a-P

Order No. 67 28 521

## Application Range

Use in Aerotest 5000, Aerotest Alpha, MultiTest med. Int.,  
Aerotest HP

Standard Measuring Range: 100 to 3,000 ppm

Test Volume: 1 L

Flow Rate: 0,2 L / min

Time for Measurement: approx. 5 min

Standard Deviation:  $\pm 10$  to 15 %

Color Change: white  $\rightarrow$  violet

## Ambient Operating Conditions

Temperature: 15 to 25 °C

Absolute Humidity: max. 23 mg H<sub>2</sub>O / L

Pressure: The tube may only be  
used for depressurized  
compressed air

## Reaction Principle

$\text{CO}_2 + \text{N}_2\text{H}_4 \rightarrow \text{NH}_2\text{-NH-COOH}$  Crystal violet

## Cross Sensitivity

Hydrogen sulfide and sulfur dioxide in the TLV range are not  
indicated.



ST-512001

*Place You Put Your Faith*

# Carbon Monoxide 5/a-P

Order No. 67 28 511

## Application Range

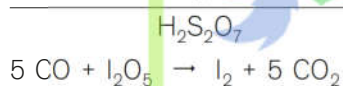
Use in Aerotest 5000, Aerotest Alpha, MultiTest med. Int.,  
Aerotest HP, SimultanTest CO<sub>2</sub>

Standard Measuring Range:	5 to 150 ppm
Test Volume:	1 L
Flow Rate:	0.2 L / min
Time for Measurement:	approx. 5 min
Standard Deviation:	± 10 to 15 %
Color Change:	white → brownish-green

## Ambient Operating Conditions

Temperature:	0 to 40 °C
Absolute Humidity:	max. 50 mg H <sub>2</sub> O / L
Pressure:	The tube may only be used for depressurized compressed air

## Reaction Principle



## Cross Sensitivity

Acetylene reacts similarly to carbon monoxide but with less sensitivity.

Petrol, benzene, halogenated hydrocarbons and hydrogen sulfide are retained in the pre-layer.

Higher concentrations of easily cleavable halogenated hydrocarbons (e.g. trichloroethylene) may form chromyl chloride in the pre-layer which changes the indicating layer to yellowish-brown.

In case of high olefine concentrations it is not possible to measure carbon monoxide.

## Extension of the Measuring Range

Using a test volume of 2 L divide the reading by 2, measuring range 2.5 to 75 ppm.



ST-71-2001

# Hydrogen Sulfide 0.2/a

Order No. 81 01 461

## Application Range

Use in SimultanTest CO<sub>2</sub>

Standard Measuring Range:	0.04 to 1 ppm
Test Volume:	4 L
Flow Rate:	0.8 L / min
Time for Measurement:	5 min
Standard Deviation:	± 25 %
Color Change:	white → palebrown

## Ambient Operating Conditions

Temperature:	10 to 30 °C
Absolute Humidity:	max. 15 mg H <sub>2</sub> O / L
Pressure:	The tube may only be used for depressurized compressed air

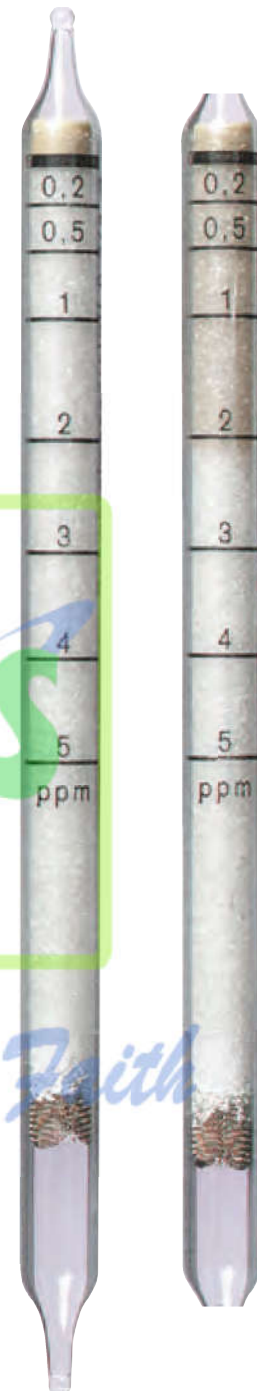
## Reaction Principle



## Cross Sensitivity

Sulfur dioxide and hydrochloric acid in the TLV range do not affect the reading.

Evaluation  $\frac{\text{Scale reading}}{5} = \text{ppm H}_2\text{S}$



ST-132-2001

C

# Hydrogen Sulfide 1/d

Order No. 81 01 831

## Application Range

Use in MultiTest med. Int.

Standard Measuring Range:	1 to 20 ppm
Test Volume:	1 L
Flow Rate:	0.17 L / min (CO <sub>2</sub> )
Time for Measurement:	6 min
Standard Deviation:	± 15 %
Color Change:	white → brown

## Ambient Operating Conditions

Temperature:	2 to 40 °C
Absolute Humidity:	max 40 mg H <sub>2</sub> O / L
Pressure:	The tube may only be used for depressurized compressed air

## Reaction Principle



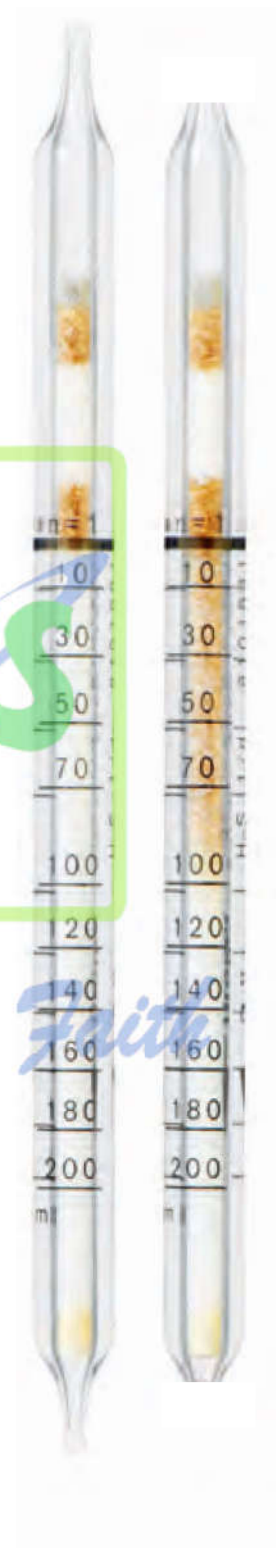
## Cross Sensitivity

500 ppm hydrochloric acid, 500 ppm sulfur dioxide, 500 ppm ammonia or 100 ppm arsine do not affect the indication.

Methyl mercaptan and ethyl mercaptan change the entire indicating layer to a pale yellow. when mixed with hydrogen sulfide the reading is extended by approx. 30 %.

## Evaluation

reading on the (n= 10)                      scale = ppm H<sub>2</sub>S



LJ-5451-2014

# Impactor, Measurement of Oil Mist

Order No. 81 03 560

## Application Range

Use in Aerotest 5000, Aerotest Alpha, MultiTest med. Int.,  
Aerotest Simultaneous HP

Standard Measuring Range: 0.1 mg/m<sup>3</sup>, 0.5 mg/m<sup>3</sup>,  
1.0 mg/m<sup>3</sup> Oil mist  
(Oil Aerosols)

Detection Limit: 0,05 mg/m<sup>3</sup> Oil mist

Test Volume: 20 L

Volumenstrom: 4 L/min

Time for Measurement: 5 min

Evaluation: see details in operating  
instructions for Impactor

## Ambient Operating Conditions

Temperature: 10 to 30 °C

Humidity: max. 60 % r. h.

Pressure: only to be used for unstressed  
compressed air

## Reaction Principle

Compressed air is guided through the Impactor vertically onto a baffle plate made of cut glass. A 90 ° re-direction of the air flow in the Impactor separates the oil aerosols. The aerosols flow directly onto the glass plate caused by the high inertia of the aerosols. The recesses in the glass are filled with the oil aerosols and the light dispersed by the glass grinding is compensated.

## Cross Sensitivity

The measurement result is not dependent on the oil grade. However, it must be noted that oil aerosols evaporate at higher temperatures. Oil vapor is not displayed.

## Additional Information

The Impactor has to be used together with the Adapter of the Impactor (Order No. 81 03 557) in conjunction with the Dräger Aerotest Simultan.

ST-357-2008



Dräger Impactor

ST-1230-2008



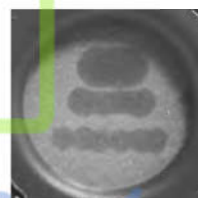
0.1 mg/m<sup>3</sup>

ST-1231-2008



0.5 mg/m<sup>3</sup>

ST-1232-2008



1.0 mg/m<sup>3</sup>

ST-604-2008



Adapter of the Impactor

ST-602-2008



Adapter with Impactor  
connected in Dräger  
Aerotest Simultan

# Nitrous Fumes 0.2/a

Order No. 81 03 661

## Application Range

Use in MultiTest med. Int., SimultanTest CO <sub>2</sub>	
Standard Measuring Range:	0.2 to 6 ppm
Test Volume:	1 L
Flow Rate:	0.2 L/min.
Time for Measurement:	5 min
Standard Deviation:	± 30 %
Color Change:	grey green → blue grey

## Ambient Operating Conditions

Temperature:	10 to 40 °C
Absolute Humidity:	max. 40 mg H <sub>2</sub> O / L
Pressure:	The tube may only be used for depressurized compressed air

## Reaction Principle

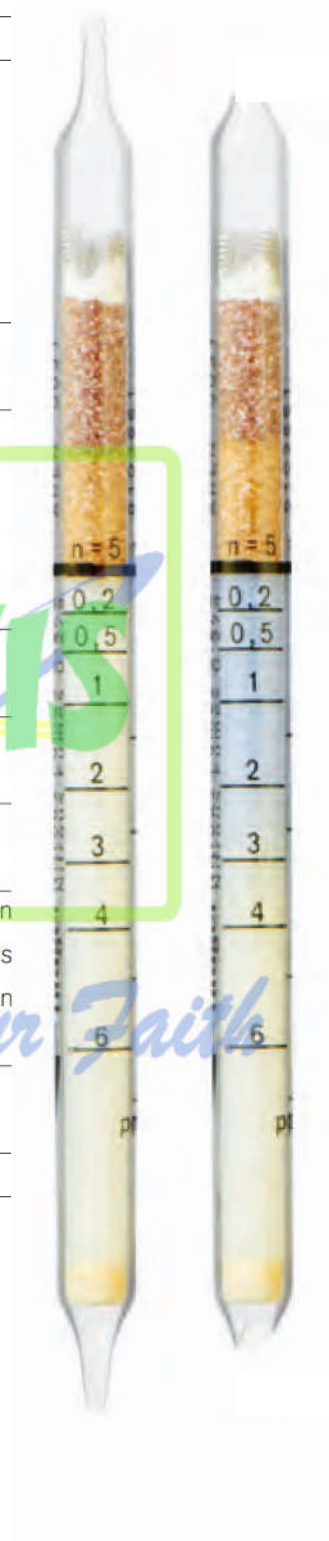
- $\text{NO} + \text{Cr}^{\text{VI}} \rightarrow \text{NO}_2$
- $\text{NO}_2 + \text{Diphenylbenzidine} \rightarrow \text{blue grey reaction product}$

## Cross Sensitivity

It is impossible to measure nitrous fumes in the presence of ozone and/or chlorine in excess of their TLV's, these gases are also indicated with different sensitivity. Nitrogen dioxide concentration above 300 ppm can bleach the indication.

## Evaluation

Scale reading = ppm nitrous fumes



D-5458-2014

# Oil 10/a-P

Order No. 67 28 371

## Application Range

Use in Aerotest 5000, Aerotest Alpha, MultiTest med. Int.,

Standard Measuring Range: 0.1 to 1 mg/m<sup>3</sup>

Time for Measurement: (see details in

Standard Deviation: operating instructions for  
Aerotest)

Color Change: white → pale beige  
or yellow

## Ambient Operating Conditions

Temperature: 10 to 30 °C

Absolute Humidity: see details in operating  
instructions for Aerotest

Pressure: The tube may only be  
used for depressurized  
compressed air

## Reaction Principle

Oil + H<sub>2</sub>SO<sub>4</sub> → beige-yellow reaction product

## Cross Sensitivity

The total concentration of mineral and synthetic aerosols (mist)  
and oil vapors is indicated.

Other organic compounds with high molecular weights are  
indicated as well but with different sensitivity.

Polyethylene glycol and silicone oils are not indicated.

## Additional Information

In combination with a Dräger gas detector pump the oil tube can  
also be used to analyse the air in work rooms. The measurement  
period depends upon the oil used. Please find a list of the oils  
tested under [www.draeger.com/voice](http://www.draeger.com/voice).



ST-143-2001

N



# Phosphine 0.1/c

Order No. 81 03 711

## Application Range

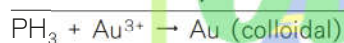
Use in SimultanTest CO<sub>2</sub>

Standard Measuring Range:	0.1 to 1 ppm
Test Volume:	1 L
Flow Rate:	0.2 L / min
Time for Measurement:	5 min
Standard Deviation:	± 10 to 15 %
Color Change:	yellow → red

## Ambient Operating Conditions

Temperature:	0 to 50 °C
Absolute Humidity:	max 40 mg H <sub>2</sub> O / L
Pressure:	The tube may only be used for depressurized compressed air

## Reaction Principle



## Cross Sensitivity

Arsine and antimony hydride are indicated, but with different sensitivities. Hydrogen sulfide, mercaptans, ammonia, carbon monoxide, sulfur dioxide and hydrochloric acid in the TLV range do not interfere.

## Evaluation

Scale reading = ppm phosphine



D-21246-2015

# Sulfur Dioxide 0.5/a

Order No. 67 28 491

## Application Range

Use in MultiTest med. Int.

Standard Measuring Range: 1 to 25 ppm / 0.25 to 1 ppm

Test Volume: 1 L / 2 L

Flow Rate: 0.2 L / 0.2 L / min

Time for Measurement: 5 min / 10 min

Standard Deviation: ± 25 %

Color Change: greyblue → white

## Ambient Operating Conditions

Temperature: 15 to 30 °C

Absolute Humidity: max. 20 mg H<sub>2</sub>O / L

Pressure: The tube may only be used  
for depressurized compressed  
air

## Reaction Principle

Starch



## Cross Sensitivity

Hydrogen sulfide is indicated as well but with different sensitivity.

Nitrogen dioxide will shorten the reading.

## Evaluation

Measuring range 1 to 25 ppm: Reading on the (n=10)  
scale = ppm

Measuring range 0.25 to 1 ppm: Reading on the  
(n= 20) scale x 0.5 = ppm SO<sub>2</sub>

(applies only for scale range

0.5 to 2 ppm)



ST-121-2001

# Sulfur Dioxide 1/a

Order No. CH 31 701

## Application Range

Use in SimultanTest CO<sub>2</sub>

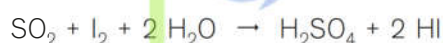
Standard Measuring Range:	0.5 to 2 ppm
Test Volume:	2 L
Flow Rate:	approx. 0.2 L / min
Time for Measurement:	in the Aerotest CO <sub>2</sub> : 10 min in the Multi Test (for CO <sub>2</sub> ): 12 min
Standard Deviation:	± 30 %
Color Change:	greyblue → white

## Ambient Operating Conditions

Temperature:	15 to 25 °C
Absolute Humidity:	3 to 20 mg H <sub>2</sub> O / L
Pressure:	The tube may only be used for depressurized compressed air

## Reaction Principle

Starch



## Cross Sensitivity

Hydrogen sulfide in the TLV range is retained in the pre-layer and thus does not affect the indication. Nitrogen dioxide will shorten the reading.

## Evaluation

reading on the (n=10) scale x 0.2 = ppm SO<sub>2</sub>  
(applies only for scale range 2.5 to 10 ppm)



D-5463-2014

# Water Vapor 5/a-P

Order No. 67 28 531

## Application Range

Use in Aerotest 5000, SimultanTest CO <sub>2</sub>	
Standard Measuring Range:	5 to 200 mg/m <sup>3</sup>
Test Volume:	50 L
Flow Rate:	2 L / min
Time for Measurement:	approx. 25 min
Standard Deviation:	± 15 to 20 %
Color Change:	yellow → reddish-brown

## Ambient Operating Conditions

Temperature:	0 to 40 °C
Pressure:	The tube may only be used for depressurized compressed air

## Reaction Principle

$\text{H}_2\text{O} + \text{SeO}_2 + \text{H}_2\text{SO}_4 \rightarrow$  reddish-brown reaction product

## Cross Sensitivity

Alcohols and unsaturated hydrocarbons of high concentrations may cause a diffused discoloration of the indicating layer.

## Extension of the measuring range

The following evaluation applies for other volumes:

reading:	5	10	30	50	70	100	150	200	mg H <sub>2</sub> O/m <sup>3</sup>
25 L vol.:	10	20	70	110	160	220	340	450	mg H <sub>2</sub> O/m <sup>3</sup>
100 L vol.:	2	4	12	20	28	40	60	80	mg H <sub>2</sub> O/m <sup>3</sup>

i.e. given a test volume of 25 L the scale reading of 50 mg H<sub>2</sub>O/m<sup>3</sup> corresponds to a measured value of 110 mg H<sub>2</sub>O/m<sup>3</sup>

Relative Standard Deviation:	± 25 to 30 % ( 25 L )
	± 20 to 25 % (100 L )



D-1244-2009

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# Water Vapor 20/a-P

Order No. 81 03 061

## Application Range

Use in Aerotest Alpha, MultiTest med. Int.,

Aerotest Simultaneous HP

Standard Measuring Range: 20 to 250 / 35 to 500

/ 150 to

1500 mg H<sub>2</sub>O/m<sup>3</sup>

Test Volume: 40 L / 20 L

Flow Rate: 4 L / min

Time for Measurement: 10 min. / 5 min. / 2.5 min.

Standard Deviation: ± 15 to 20 %

Color Change: yellow → red-brown

## Ambient Operating Conditions

Temperature: 0 to 40 °C

Humidity: cf. measuring range

Pressure: The tube may only be used for depressurized compressed air

## Reaction Principle

$$\text{H}_2\text{O} + \text{SeO}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{reddish brown reaction product}$$

## Cross Sensitivity

Alcohols and unsaturated hydrocarbons of high concentrations may cause a diffused discoloration of the indicating layer.



D-13330-2010