Perchloroethylene 0.1 to 2 mg/L

Order No. 81 01 501

Application Range

Determination of perchloroethylene in water/waste water

Dräger-Tube:	Perchloroethylene 2/a
Measuring range:	0.1 to 1 mg/L / 0.5 to 2 mg/L
Number of Strokes (n):	8 / 4
Typical Stroke Time:	45 to 65 s
Measurement Time:	approx. 440 s / ca. 220 s
Sample Volume:	200 mL
Color Change:	yellow white → grey blue
Temperature Range:	8 to 37 °C
pH-Measurement:	not necessary

System Parameters

Measurement Range [mg/L]	Standard Deviation [%]	Temperature [°C]	Parameters B	C
0.1 to 1	25	8 to 12	0.035	0
number	20	13 to 17	0.031	0
of strokes	20	18 to 22	0.028	0
n=8	20	23 to 27	0.026	0
	20	28 to 32	0.025	0
	25	33 to 37	0.023	0
0.5 to 2	25	8 to 12	0.075	0
number	20	13 to 17	0.071	0
of	20	18 to 22	0.065	0
strokes	20	23 to 27	0.057	0
n=4	25	28 to 32	0.056	0
	30	33 to 37	0.047	0

Evaluation of Measurement

Calculate perchloroethylene concentration:

$$Y_{[mg/L]} = A \bullet B \bullet (X_{[ppm]} + C)$$

Cross Sensitivity

Dichloromethane and chloroform are indicated with lower sensitivity. Trichloroethylene is indicated with nearly the same sensitivity. Petroleum hydrocarbons, benzene, carbon tetrachloride, toluene, 1,1,1-trichloroethane and xylene are not indicated.

P

Chlorinated Hydrocarbons qualitative in multiple phase

Order No. 81 01 501

Application Range

Determination of volatile chlorinated hydrocarbons in multiple phase

Dräger-Tube:	Perchloroethylene 2/a
Measuring range:	qualitative
Number of Strokes (n):	maximum 10
Typical Stroke Time:	45 to 65 s
Measurement Time:	approx. 55 to 550 s
Sample Volume:	200 mL
Color Change:	yellow white → grey blue
Temperature Range:	10 to 25 °C
pH-Measurement:	not necessary

Information of Measurement

- Mix a multiple phase sample which consists of e.g. 250 g water, 10 g fixed phase and 10 g oil part (about 300 mL) is mixed with approx. 5 g activated coal. It must rest for 3 minutes and then be shaken for 1 min.
- 0.2 g hydrophobated peat is added and the it must be shaken for 1 minute.
- The liquid is filled into the gas wash bottle up to the 200 mL mark.

Evaluation of Measurement

The measurement evaluation is qualitative (yes or no)

Cross Sensitivity

Chlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, dichloromethane, perchloroethylene, trichloroethylene and trichloromethane are indicated. Carbon tetrachloride and 1,1,1-trichloroethane are not indicated.

C

Chlorinated Hydrocarbons qualitative in oil

Order No. 81 01 501

Application Range

Determination of volatile chlorinated hydrocarbons in oil sludges/oil emulsions

Dräger-Tube:	Perchloroethylene 2/a
Measuring range:	qualitative
Number of Strokes (n):	maximum 10
Typical Stroke Time:	45 to 65 s
Measurement Time:	approx. 55 to 550 s
Sample Volume:	approx. 0.5 g
Color Change:	yellow white → grey blue
Temperature Range:	10 to 25 °C
pH-Measurement:	not necessary

Information of Measurement

- Approx. 0.5 g oil sample has to be shaken intensively with 1 L de-ionized water for 2 minutes in a laboratory bottle.
- The solution must be filtered through an analysis funnel with a round filter (black ribbon) directly into the gas wash bottle up to the 200 mL mark.

Evaluation of Measurement

The measurement evaluation is qualitative (yes or no)

Cross Sensitivity

Chlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, dichloro-methane, perchloroethylene, trichloroethylene and trichloromethane are indicated. Carbon tetrachloride and 1,1,1-trichloroethane are not indicated.

ST-90-2001

Chlorinated Hydrocarbons qualitative in multiple phase

Order No. 81 01 501

Application Range

Determination of volatile chlorinated hydrocarbons in multiple phase

Dräger-Tube:	Perchloroethylene 2/a
Measuring range:	qualitative
Number of Strokes (n):	maximum 10
Typical Stroke Time:	45 to 65 s
Measurement Time:	approx. 55 to 550 s
Sample Volume:	200 mL
Color Change:	yellow white → grey blue
Temperature Range:	10 to 25 °C
pH-Measurement:	not necessary

Information of Measurement

- Mix a multiple phase sample which consists of e.g. 250 g water, 10 g fixed phase and 10 g oil part (about 300 mL) is mixed with approx. 5 g activated coal. It must rest for 3 minutes and then be shaken for 1 min.
- 0.2 g hydrophobated peat is added and the it must be shaken for 1 minute.
- The liquid is filled into the gas wash bottle up to the 200 mL mark.

Evaluation of Measurement

The measurement evaluation is qualitative (yes or no)

Cross Sensitivity

Chlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, dichloromethane, perchloroethylene, trichloroethylene and trichloromethane are indicated. Carbon tetrachloride and 1,1,1-trichloroethane are not indicated.

ST-90-2001

C

Trichloroethylene 0.1 to 1 mg/L

Order No. 81 01 501

Application Range

Determination of trichloroethylene in water/waste water

Dräger-Tube:	Perchloroethylene 2/a
Measuring range:	0.1 to 1 mg/L
Number of Strokes (n):	8
Typical Stroke Time:	45 to 65 s
Measurement Time:	approx. 440 s
Sample Volume:	200 mL
Color Change:	yellow white → grey blue
Temperature Range:	5 to 33 °C
pH-Measurement:	not necessary

System Parameters

Measurement Range [mg/L]	Standard Deviation [%]	Temperature [°C]	Parameters B	C
0.1 to 1	30	5 to 10	0.033	0
		11 to 15	0.030	0
		16 to 22	0.024	0
		23 to 28	0.020	0
		29 to 33	0.018	0

Evaluation of Measurement

Calculate trichloroethylene concentration:

$$Y_{[mg/L]} = A \bullet B \bullet (X_{[ppm]} + C)$$

Cross Sensitivity

Dichloromethane, chlorobenzene, 1,1-dichloroethane, 1,2 dichloroethane and chloroform are indicated with lower sensitivity. Perchloroethylene is indicated with nearly the same sensitivity. Carbon tetrachloride and 1,1,1-trichloroethane are not indicated.

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