

Perchloroethylene 10 to 80 µg/L

Order No. 81 01 551

Application Range

Determination of perchloroethylene in water/waste water

Dräger-Tube:	Perchloroethylene 0.1/a
Measuring range:	10 to 80 µg/L
Number of Strokes (n):	8
Typical Stroke Time:	2 to 3 minutes
Measurement Time:	approx. 20 minutes
Sample Volume:	200 mL
Color Change:	yellow white → grey blue
Temperature Range:	5 to 30 °C
pH-Measurement:	not necessary

System Parameters

Measurement Range [µg/L]	Standard Deviation [%]	Temperature [°C]	Parameters	
			B	C
10 to 80	30	5 to 30	70	-0.1

Evaluation of Measurement

Calculate perchloroethylene concentration:

$$Y_{[\mu\text{g/L}]} = A \cdot B \cdot (X_{[\text{ppm}]} + C)$$

Cross Sensitivity

Dichloromethane, chlorobenzene, chloroform, 1,1-dichloroethane and 1,2-dichloroethane 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.



ST-199-2001

Chlorinated Hydrocarbons qualitative in oil

Order No. 81 01 551

Application Range

Determination of volatile chlorinated hydrocarbons
in oil sludges/oil emulsions

Dräger-Tube:	Perchloroethylene 0.1/a
Measuring range:	qualitative
Number of Strokes (n):	maximum 10
Typical Stroke Time:	2 to 3 minutes
Measurement Time:	approx. 2 to 20 minutes
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, dichloromethane, perchloroethylene, trichloroethylene and trichloromethane are indicated. Carbon tetrachloride and 1,1,1-trichloroethane are not indicated.



ST-189-2001

Chlorinated Hydrocarbons qualitative in multiple phase

Order No. 81 01 551

Application Range

Determination of volatile chlorinated hydrocarbons in multiple phase

Dräger-Tube:	Perchloroethylene 0.1/a
Measuring range:	qualitative
Number of Strokes (n):	maximum 10
Typical Stroke Time:	2 to 3 minutes
Measurement Time:	approx. 2 to 20 minutes
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.



SI-5751-2004

Chlorinated Hydrocarbons qualitative in soil

Order No. 81 01 551

Application Range

Determination of volatile chlorinated hydrocarbons in soil

Dräger-Tube:	Perchloroethylene 0.1/a
Measuring range:	qualitative
Number of Strokes (n):	maximum 10
Typical Stroke Time:	2 to 3 minutes
Measurement Time:	approx. 2 to 20 minutes
Sample Volume:	20 g
Color Change:	yellow white → grey blue
Temperature Range:	10 to 25 °C
pH-Measurement:	not necessary

Information of Measurement

- 20 g soil is suspended completely with 100 mL de-ionized water and 1 mL surfactant solutions (2 mass % Extran AP 13, Merck).
- The precipitate must rest for approx. 1 minute, until the particles have settled to the bottom; the liquid above the particles has to be filled into the wash bottle
- The remaining precipitate has to be shaken two times with 50 mL de-ionized water and the liquid above the particles has to be filled into the wash bottle
- The gas wash bottle is filled up with de-ionized water up to 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.



SI-5751-2004

Trichloroethylene 10 to 100 µg/L

Order No. 81 01 551

Application Range

Determination of trichloroethylene in water/waste water

Dräger-Tube:	Perchloroethylene 0.1/a
Measuring range:	10 to 100 µg/L
Number of Strokes (n):	4
Typical Stroke Time:	2 to 3 minutes
Measurement Time:	approx. 10 minutes
Sample Volume:	200 mL
Color Change:	yellow white → grey blue
Temperature Range:	5 to 30 °C
pH-Measurement:	not necessary

System Parameters

Measurement Range [µg/L]	Standard Deviation [%]	Temperature [°C]	Parameters	
			B	C
10 to 100	30	5 to 10	134	0
		11 to 20	120	-0.01
		21 to 30	90	0

Evaluation of Measurement

Calculate trichloroethylene concentration:

$$Y_{[\mu\text{g/L}]} = A \cdot B \cdot (X_{[\text{ppm}]} + C)$$

Cross Sensitivity

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

