

# COD Setups COD VARIO (ISO 15705:2002) COD Photometer

## Determination of the chemical oxygen demand index (ST-COD)

Small-scale sealed-tube  
Total range 0 - 15000 mg/l



## Waste water parameter COD

The chemical oxygen demand, ST-COD value (ST = small scale sealed tube), of water as determined by this dichromate method can be considered as an estimate of the theoretical oxygen demand, i.e. the amount of oxygen consumed in total chemical oxidation of the organic constituents present in the water.

## COD VARIO Photometers

With a measuring range from 0 to 15,000 mg/l O<sub>2</sub>, the Lovibond® COD VARIO photometers are suitable for waste water testing.

Two LEDs light sources with long-term stability ( $\lambda_1 = 610 \text{ nm}$ ;  $\lambda_2 = 430 \text{ nm}$ , according to ISO 15705:2002), a waterproof sample chamber, a large digital display, and the user-friendly keypad ensure maximum operating reliability and convenience.

**MD 100 COD VARIO** Order code: 27 61 20  
(MD 100 photometer only in case)

**MD 200 COD VARIO** Order code: 289 25 02  
(MD 200 photometer only in case)

## Setups COD VARIO

The Lovibond® COD VARIO setups allow highly sensitive and precise water testing with minimum effort. They measure the ST-COD concentration by photometric detection employing a linear relationship between absorbance and concentration.

After adding the sample to a Lovibond® COD VARIO tube test (LR, MR according to ISO 15705:2002), it is heated in the reactor and then analysed in the photometer.

The COD setups comprise the photometer, 25 tube tests for each of the two lower measuring ranges, a reactor for sample digestion, and a vial stand.

**COD Setup** Order code: 27 61 30

### MD 100 COD VARIO

Instrument in carrying case, 4 batteries (AAA), adapter for round vials  $\varnothing 16 \text{ mm}$ , 2 sets of tube tests 0-150 mg/l, 0-1500 mg/l, thermoreactor RD 125, tube stand, 2 syringes 1 ml, 2 ml, guarantee sheet, certificate (COC), instruction manual

**COD Setup** Order code: 289 26 02

### MD 200 COD VARIO

Instrument in carrying case, 4 batteries (AA), adapter for round vials  $\varnothing 16 \text{ mm}$ , 2 sets of tube tests 0-150 mg/l, 0-1500 mg/l, thermoreactor RD 125, tube stand, 2 syringes 1 ml, 2 ml, guarantee sheet, certificate (COC), instruction manual

## Ranges

0 – 150 mg/l O<sub>2</sub>  $\pm 3,5\%$  FS  
0 – 1500 mg/l O<sub>2</sub>  $\pm 3,5\%$  FS  
0 – 15000 mg/l O<sub>2</sub>  $\pm 3,5\%$  FS

\* tolerance based on the use of potassium-hydrogenepthalate standards (DIN 38409)

## COD VARIO tube tests

The Lovibond® COD VARIO tube tests are available for the measuring ranges 0-150 mg/l O<sub>2</sub>, 0-1500 mg/l O<sub>2</sub> and 0-15000 mg/l O<sub>2</sub>. Their chemical properties and a 16 mm tube diameter is suitable also for use with different Hach photometers.

Tube tests	Order code
<b>0-150 mg/l O<sub>2</sub></b>	
(25 pc.), mercury free**	2 42 07 10
(25 pc.)	2 42 07 20
(150 pc.)	2 42 07 25
<b>0-1500 mg/l O<sub>2</sub></b>	
(25 pc.), mercury free**	2 42 07 11
(150 pc.), mercury free**	2 42 07 16
(25 pc.)	2 42 07 21
(150 pc.)	2 42 07 26
<b>0-15000 mg/l O<sub>2</sub></b>	
(25 pc.), mercury free**	2 42 07 12
(25 pc.)	2 42 07 22
(150 pc.)	2 42 07 27

\*\* without chloride removal

## Standard solutions

Standard solutions are solutions with a defined concentration and are provided to check the operation methods and devices of the cuvette tests as well as the condition of optical filters and the instrument.

Standard solution	Quantity	Code
<b>100 mg/l COD</b>	30 ml	2 42 08 03
<b>500 mg/l COD</b>	30 ml	2 42 08 04
<b>5000 mg/l COD</b>	10 ml	2 42 08 05

## Highlights

- ST-COD sealed tubes ready for use
- Suppression of chloride interference up to 1000 mg/l (LR & MR) up to 10000 mg/l (HR)
- Mercury free tube tests, in absence of chloride interference
- 3 ranges:  
Low range:  
0 - 150 mg/l, meets ISO 15705:2002  
Middle range:  
0 - 1500 mg/l, meets ISO 15705:2002  
High range:  
0 - 15000 mg/l

# Thermoreactor RD 125

For the Tube test digestion of:

**COD (150°C)**

**TOC (120°C)**

**Total Chromium (100°C)**

**Total Nitrogen (100°C)**

**Total Phosphate (100°C)**



Chemical digestion of samples is required for the photometric determination of COD, TOC, total phosphate and total nitrogen.

The required temperatures and reaction time can be selected by using the membrane keypad of the reactor RD 125. The unit works at three different temperatures (100 / 120 / 150 °C) and three pre-set reaction times 30 / 60 / 120 minutes). When digestion is complete, the reactor automatically switches off and gives a corresponding LED indication with short beep alarm.

The RD 125 reactor is fitted with 24 holes for 16 mm diameter vials.

With the voltage switch on the back 230 V and 115 V are selectable.

**COD Reactor RD 125** Order code: 2 41 89 40

## Technical data RD 125

<b>Power supply</b>	230 V / 50-60 Hz or 115 V / 50-60 Hz (switchable)
<b>Power</b>	550 W
<b>Dimensions</b>	248 x 219 x 171 mm
<b>Weight</b>	3.9 kg
<b>Materials, housing</b>	ABS
<b>Protection grid</b>	PPS
<b>Lid</b>	PC
<b>Block insert</b>	PBT
<b>Heating block</b>	Aluminium
<b>Holes in the aluminium block</b>	24 holes, 16.2 mm ± 0.2 mm
<b>Selectable temp.</b>	100 / 120 / 150 °C
<b>Probe type</b>	Pt100 A class
<b>Temperature stability</b>	± 1 °C at the Pt100
<b>Selected time</b>	30 / 60 / 120 / min. and continuous operation (∞)
<b>Heating up</b>	from 20°C to 150°C in 12 min.
<b>Regulation</b>	Microprocessor
<b>Protection against overheating</b>	at the alu block at 190 °C
<b>Beeper</b>	max. 88 dB (piezo buzzer)
<b>Environmental conditions</b>	10 – 40 °C max. 85 % rel. humidity

**CE-Conformity**

Photometry

## Waste Water Set-Ups

### Waste Water Set-Up MD 600 21 41 00

Photometer MD 600 with standard accessory, thermo reactor RD 125, Infra-red data transmission module IRiM, tube stand, membrane filter set, instruction manual, guarantee sheet  
COD 0 - 150 mg/l and 0 - 1500 mg/l,  
Ammonia 1 - 50 mg/l N,  
Nitrate 1 - 30 mg/l N  
Nitrite LR 0,01 - 0,3 mg/l N  
Nitrogen 5 - 150 mg/l N  
Phosphate 0.02 - 1 mg/l P / 0.06 - 3.5 mg/l PO<sub>4</sub>

### Waste Water Set-Up SpectroDirect 71 21 00

Spectrophotometer SpectroDirect, thermo reactor RD 125, 5 round vials ø 24 mm, tube stand, membrane filter set, instruction manual, guarantee sheet  
COD 0 - 150 mg/l and 0 - 1500 mg/l,  
Ammonia 1 - 50 mg/l N,  
Nitrate 1 - 30 mg/l N  
Nitrite LR 0,01 - 0,3 mg/l N  
Nitrogen 5 - 150 mg/l N  
Phosphate 0.02 - 1 mg/l P / 0.06 - 3.5 mg/l PO<sub>4</sub>

## Reagents

COD 0-150 mg/l O <sub>2</sub> (25 pc.), mercury free ** (25 pc.) (150 pc.)	2 42 07 10 2 42 07 20 2 42 07 25
CSB 0-1500 mg/l O <sub>2</sub> (25 pc.), mercury free ** (150 pc.), mercury free ** (25 pc.) (150 pc.)	2 42 07 11 2 42 07 16 2 42 07 21 2 42 07 26
CSB 0-15000 mg/l O <sub>2</sub> (25 pc.), mercury free ** (25 pc.) (150 pc.) ** without chloride removal	2 42 07 12 2 42 07 22 2 42 07 27
Ammonia VARIO HR tube test	53 56 50
Nitrate VARIO tube test	53 55 80
Nitrite LR VARIO powder pack	53 09 80
Nitrogen VARIO Total HR tube test	53 55 60
Phosphate VARIO Total HR tube test	53 52 10

## Accessories

Set of round vials with lids Height 48 mm, Ø 24 mm	19 76 29
Membrane filter set for use when preparing samples, 25 membrane filters 0.45 µm, 2 syringes 20 ml	36 61 50
Vial stand for 6 round vials Ø 24 mm, acrylic glass	41 89 51
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	41 89 57
Automatic pipette*, 1 - 5 ml	41 90 76
Pipette tips*, 1 - 5 ml (white), 100 pc.	41 90 66
Automatic pipette**, 0.1 - 1 ml	41 90 77
Pipette tips**, 0.1 - 1 ml (white), 1000 pc.	41 90 73

\* 0 - 150 mg/l and 0 - 1500mg/l ; \*\* 0 - 15000 mg/l