

DULCOTEST® Sensors for Total Available Chlorine

Reliable online measurement of total available chlorine – with DULCOTEST® sensors.

LENNTECH
WATER TREATMENT SOLUTIONS



ProMinent®

Graduated measuring ranges 0.01 – 10 mg/l

Total available chlorine is also known as "stabilised chlorine" and is used to prevent premature decomposition by sunlight in the disinfection of swimming pool water, particularly in outdoor pools. This mainly includes compounds such as derivatives of tri-chloro(iso)cyanuric acid. After it has been metered into the water to be treated, it forms free chlorine and also (iso)cyanuric acid containing chlorine. The sensor

measures both compounds, which are designated as total available chlorine.

The innovative diaphragm-covered DULCOTEST® sensor for total available chlorine CGE3 is optimised for the control of the disinfection of swimming pool water with derivatives of chloro(iso)cyanuric acid. The sensor can also be used simultaneously with in-line chlorine electrolysis processes without disturbance from the by-products generated.

Your benefits

- Sensor for total available chlorine, also suitable for the combination of in-line electrolysis with derivatives of chloro(iso)cyanuric acid
- Can also be used as a sensor for free chlorine without interference with the presence of cyanuric acid
- Precise, real-time amperometric measurement for efficient process control (short response time)
- Amperometric measuring means no turbidity or discolouration
- Stable zero point
- Integrated temperature compensation eliminates faults caused by influence of temperature

Field of application

- Control of total available chlorine in swimming pools, especially outdoor pools.

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Technical Data

Sensor for total available and free chlorine CGE 3-mA

Sensor for total available chlorine, such as derivatives of chloro(iso)cyanuric acid, without disturbance when used in swimming pools where disinfection is provided by electrolysis processes. Also suitable for use as a sensor for free chlorine. For operation with controllers with 4-20 mA input

Your benefits

- Measured variable: total available chlorine, for instance disinfectant with organic chlorine, such as derivatives of chloro(iso)cyanuric acid
- Measured variable: free chlorine without interference with the presence of cyanuric acid
- Gold electrode to prevent faults by products from electrolysis processes where the electrodes are immersed directly into the sample water (without diaphragm)
- Diaphragm-covered sensor (encapsulated) minimises faults caused by changing flow or substances in the water
- Hydrophilic diaphragm guarantees the permeability of chloro(iso)cyanuric acid derivatives towards the measuring electrodes
- The special reaction system of the electrolyte allows the total available chlorine to be determined and use at a high pH of up to 9.5

Measured variable	Free chlorine and total available chlorine: Total of organically bound chlorine (e.g. bound to cyanuric acid) and free chlorine
Reference method	DPD1
pH range	5.5 ... 9.5
Temperature	5 ... 45 °C
Max. pressure	3.0 bar
Intake flow	30...60 l/h (in DGM or DLG III)
Supply voltage	16...24 V DC (2-wire system)
Output signal	4-20 mA ≈ Measuring range, temperature-compensated, uncalibrated, not electrically isolated
Selectivity	total available chlorine and free chlorine as against combined chlorine (chloramines)
Disinfection process	Disinfectants with organic chlorine, e.g. based on cyanuric acid, chlorine gas, hypochlorite, electrolysis
Installation	Bypass: open sample water outlet
Sensor fitting	DGM, DLG III
Measuring and control equipment	D1C, DAC, AEGIS II
Typical applications	Swimming pool water; combined disinfection processes with chloro(iso)cyanuric acid derivatives and electrolysis. Water of a similar quality to potable water with a higher pH of up to 9.5.
Resistance to	Surfactants, cyanuric acid
Measuring principle, technology	Amperometric, 2 electrodes, membrane-covered

	Measuring range	Order no.
CGE 3-mA-2 ppm	0.02...2.0 mg/l	1047959
CGE 3-mA-10 ppm	0.10...10.0 mg/l	1047975

A mounting kit, order no. 815079, is required for initial fitting of the chlorine sensors in the in-line probe housing DLG III.

DULCOTEST® Sensors for Total Available Chlorine

Reliable online measurement of total available chlorine – with DULCOTEST® sensors.

Sensor for total available and free chlorine CGE 3-CAN-P

Sensor for total available chlorine, such as derivatives of chloro(iso)cyanuric acid when used in swimming pools. Also suitable for use as a sensor for free chlorine. For use on controllers with CAN-bus connection

Your benefits

- Measured variable: total available chlorine, for instance disinfectant with organic chlorine, such as derivatives of chloro(iso)cyanuric acid
- Measured variable: free chlorine without interference with the presence of cyanuric acid
- Gold electrode to prevent faults by products from electrolysis processes where the electrodes are immersed directly into the sample water (without diaphragm)
- Diaphragm-covered sensor (encapsulated) minimises faults caused by changing flow or substances in the water
- Hydrophilic diaphragm guarantees the permeability of chloro(iso)cyanuric acid derivatives towards the measuring electrodes
- The special reaction system of the electrolyte allows the total available chlorine to be determined and use at a high pH of up to 9.5
- Operation on the CAN-bus with all the associated benefits

Measured variable	Free chlorine and total available chlorine: Total of organically bound chlorine (e.g. bound to cyanuric acid) and free chlorine
Reference method	DPD1
pH range	5.5 ... 9.5
Temperature	5 ... 45 °C
Max. pressure	3.0 bar
Intake flow	30...60 l/h (in the DGM or DLG III)
Supply voltage	Via CAN interface (11 – 30 V DC)
Output signal	Uncalibrated, temperature-compensated, electrically isolated
Selectivity	total available chlorine and free chlorine as against combined chlorine (chloramines)
Disinfection process	Disinfectants with organic chlorine, e.g. based on cyanuric acid, chlorine gas, hypochlorite, electrolysis
Installation	Bypass: open sample water outlet
Sensor fitting	DGM, DLG III
Measuring and control equipment	DULCOMARIN® 3, DULCOMARIN® II with hardware before 06.02.2014 from software version 3027 or later, with hardware after 06.02.2014 from software version 3033 or later
Typical applications	Swimming pool water, disinfection processes with chloro(iso)cyanuric acid derivatives and electrolysis. Water of a similar quality to potable water with a higher pH of up to 9.5.
Resistance to	Surfactants, cyanuric acid
Measuring principle, technology	Amperometric, 2 electrodes, membrane-covered

	Measuring range	Order no.
CGE 3-CAN-P-10 ppm	0.01...10.0 mg/l	1083211

A mounting kit, order no. 815079, is required for initial fitting of the chlorine sensors in the in-line probe housing DLG III.



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