Colifast CALM

Rapid automated quantification of indicator bacteria in water

CALM

The Colifast At-Line Monitor – CALM is a fully automated early warning system for monitoring of coliforms and *Pseudomonas Aeruginosa* in water. The technology is timesaving, cost reducing, and environmentally friendly. The applications of the CALM span from raw water, in-process water, and waste water, to environmental monitoring.

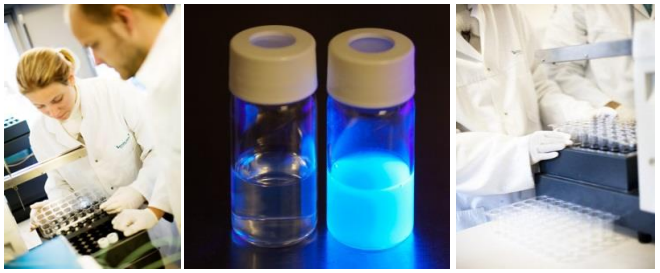
No laboratory facilities and minimal skills in microbiology are required to perform the analysis. The CALM is easily operated by the system computer or via LAN interface. The patented Colifast growth media are supplied in multi well CALM Trays and the systems flexibility makes it easy to adapt to different applications. The CALM can perform parallel analysis of different target organisms.

Depending on method and test frequency, the CALM needs monthly or weekly refilling of reagents.

Technology

The CALM detects and quantifies *E.coli*, thermotolerant coliforms and total coliforms in water by fluorometrical monitoring of β-glucoronidase activity. The detection of *P. aeruginosa* is based on substrate hydrolysation by amino peptidase enzymes present in this bacterium. The Colifast technology is comprised of unique media formulations combined with instrument detection systems. The technology is covered by patents in numerous countries, with several additional international patents pending.

Incubator temperatures for the selection of thermotolerant coliforms (44 °C) and total coliforms / *E.coli* (37°C) / *P. aeruginosa* (37°C) is preset.



Colifast Trays™ facilitates handling and disposal of growth media

Installation site specifications

Environment: Temperature 5-35 °C, relative humidity < 90 %.
Voltage: 110-240 (±10 %) VAC 50/60 Hz.
Enclosure: Dust- and water- resistant locking cabinet . W x H x D = 50 (70) x 145 x 45 cm
Water sample: Provided as a continuous overflowing stream at ambient pressure, in a well mounted at the side of the enclosure
Power Consumption: Max. 650 Watts.
*Available LAN access
*Available input ports (digital and analogue) on PLC or other industrial interface system

** Optional*

COLIFAST®

Results

Depending on the method chosen, CALM will present results directly in colony forming units (CFU)/100 ml, Most Probable Number (MPN), and/ or Presence/ Absence (P/A). Tests for two different bacteria may be performed simultaneously. Results are given in 4 - 12 hours.

The CALM-system consists of a sampling and analyzing unit, an incubator unit with a robot-arm for distribution of the samples (up to 76 samples), and an industrial touch screen computer with instrument software. The CALM is pre-programmed to automatically sample flowing water at any location in a schedule predetermined by the operator. Then, the system automatically performs the subsampling required to provide the results. Analytical results are transmitted instantaneously to the operator or laboratory by analogue signaling and/or GSM, telephone line (SMS), or standard internet connections.

Demowatercoli Verification

The CALM has been validated in the EU project, Demowatercoli. It was a «demonstration of a rapid microbial monitor for operations and quality decision-making in the water industries».

Verification results showed a 100 % agreement with reference methods and an excelent sensitivity and specificity. Please contact Colifast AS for additional information about verification and references.



Available Analysis Formats

Format	P/A (presence/absence)	MPN (most probable number)	MUP Rapid screening	ESQ (estimated semi quantification)
Levels of bacteria	≥ 1 cfu/100mL	Low, medium (1-5000 cfu/100ml)	≥ 500 cfu/100mL	Low to high (from 1cfu/25mL)
Time to result	10-12 h *E.coli* / 9- 11 h fecal coliforms	10-12 h *E.coli* / 9-11 h fecal coliforms	15 – 120 min	4 (high)-12 (low) hours
Measurement	Bacterial growth. Based on fluorescence above (presence) or below (absence) of a threshold value.	Bacterial growth. Based on number of positive vials (above threshold value) Automated MPN calculation and presentation of results.	Chemical reaction between a substrate in the growth medium and enzymes produced by the coliform bacteria	Bacterial growth. Time to detect. Based on time to reach threshold level linked to a semi-quantification table based on empirical data. Automated ESQ calculation and presentation of results.
Sample volume and number of wells	4 wells with 25 mL	0,05-100ml, 1-8 duplicates wells (depending on local bacterial level).	1 well with 10 mL	5-25mL (depending on local bacterial level).
Highlights	- Based on the enzyme activity and growth of viable bacteria - Robust method - High specificity	- Based on the enzyme activity and growth of viable bacteria - Robust method - High specificity	- Based on the enzyme activity - Rapid method -Can run a new sample every 2nd hour	- Based on the enzyme activity of vital bacteria - Quick results when bacterial levels are high - Many samples per run - Wide range/ large number of possible results - High specificity

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