ColiMinder
ONLINE MICROBIAL MONITORING

References Awards & Scientific Publications

BEVERAGE PRODUCTION

Customer:	Romaqua – Mineral Water Production Romania, 2 ColiMinder in 2 bottling plants
Application:	Online monitoring of microbiological water quality of two mineral water wells and quality control throughout entire bottling process.
Task:	Safeguarding product quality, enable evidence-based decision-making to CIP (Clean in Place) based on information of actual microbiological level, testing final product prior to delivery, increase safety and efficiency of the bottling process.
Target organism:	Total Microbiological Activity (ALP)
Contact:	Mr Radu Lazaroiu, General Manager Romaqua, radu.borsec@romaqua.ro

ROMAQUA GROUP
BORSEC

Customer:	**Major European Beverage Producer**
Application:	ColiMinder used in the lab to replace parts of the manual plate testing. Roll-out as a process monitoring instrument started October 2023.
Task:	Safeguarding microbial quality throughout entire beverage production process, testing of final products prior to dispatch. ROI through reduction off manual lab tests and increased safety.
Target organism:	Total Microbiological Activity (for Mineral Water), E. coli
Contact:	no additional disclosure of information possible.

Customer:	**Major international soft drink company,** several plants in South Africa
Application:	Online monitoring of microbial water quality at different steps throughout the water purification process, from incoming water to end product.
Task:	Safeguarding product quality and increase safety and efficiency of the soft drink production process.
Target organism:	Total Microbiological Activity (ALP)
Contact:	no disclosure of information possible due to an NDA.

Customer:	**Fruit Juice Bottling Company, Austria**
Application:	Using the ColiMinder for continuous monitoring of microbial water quality at different steps in an energy drink bottling process.
Task:	Safeguarding product quality, increase safety and efficiency of bottling process.
Target organism:	Total Microbiological Activity (ALP)
Contact:	no disclosure of information possible.

DRINKING WATER

Customer:	**WSD** – public **W**ater **S**upply **D**epartment, Hong Kong
Application:	ColiMinder has been successfully validated in a technology evaluation project, and WSD will continue using the ColiMinder for monitoring final drinking water and equip further drinking water plants with the instrument. Next scheduled investment will be a ColiMinder Emergency Response Unit for scanning the drinking water network.
Task:	Ensuring microbial safety in drinking water supply.
Target organism:	Total Microbiological Activity (ALP)
Contact:	through our partner **Guyline Asia Ltd.** Ms Wendy Lai, General Manager, Wendy@guyline.com.hk or GM@guyline.com.hk

Water Supplies Department
The Government of the Hong Kong Special Administrative Region

Customer:	**DEWA** – Dubai Electricity and Water Authority, UAE
Application:	Monitoring microbial water quality in drinking water, also used for R&D
Task:	Ensuring drinking water safety, planned roll-out to more installations within DEWA
Target organism:	Total Microbiological Activity (ALP)
Contact:	through our partner **AIWAEN**: Mr Craysac Fx, CEO, E-Mail: craysacfx@waen.ai

ديوا
dewa

Customer:	**KWR** Water Research Institute, The Netherlands
Application:	Technology evaluation and validation for Dutch drinking water utilities, comparison with other techniques. ColiMinder was confirmed to be a reliable technology for being used in drinking water.
Task:	Identifying most suitable deployments and use cases of ColiMinder for Dutch Water Utilities.
Target organism:	Total Microbiological Activity (ALP)
Contact:	Marcelle van der Waals, Scientific researcher - Microbial Water Quality and Health phone +31 30 606 9566 | E-Mail: Marcelle.van.der.Waals@kwrwater.nl

KWR

Customer:	**Wasserleitungsverband Nördliches Burgenland (WLVNB), Austria**
Application:	Austria's 5th biggest water supplier uses the ColiMinder ERU for validation of water quality curing and after construction works at the drinking water network. Reporting results to governmental authorities with the aim to officially approve ColiMinder results.
Task:	Ensuring microbial water quality throughout construction works.
Target organism:	Total Microbiological Activity (ALP), E. coli and Enterococci
Contact:	**Rudolf Stagl,** Head of Maintenance, Rudolf.stagl@wasserleitungsverband.at

Customer:	**LIST** – Luxembourg Institute of Science & Technology
Application:	Online monitoring of microbiological water quality in drinking water production and distribution at different Luxembourg drinking water utilities. Next project SMARTWATER including 2 ColiMinder units.
Task:	Ensuring safety of drinking water supply
Target organism:	Total Microbiological Activity (ALP)
Contact:	**Mr Jean-Baptiste Burnet,** jeanbaptiste.burnet@list.lu Mobile: +352 691 682 273

Customer:	**Unitywater** - drinking water utility, Australia
Application:	Online monitoring of microbiological water quality of final drinking water in the drinking water network, installed at several reservoirs and pipelines.
Task:	Ensuring safety of drinking water supply.
Target organism:	Total Microbiological Activity (ALP)
Contact:	through **Optimos Solutions**, distribution partner for Australia & NZL Mr. Phil Krasnostein, Director, phil@optimosgroup.com.au, Mobile: +61 409359155

Customer:	**The Water Corporation**, water supply, Perth, Australia
Application:	Piloting the ColiMinder for different application, from raw water for desalination through drinking water to wastewater effluent.
Task:	Ensuring safety of drinking water supply and wastewater effluent.
Target organism:	Total Microbiological Activity (ALP), E. coli Saline
Contact:	through **Optimos Solutions**, distribution partner for Australia & NZL Mr. Phil Krasnostein, Director, phil@optimosgroup.com.au, Mobile: +61 409359155

Customer:	**Bathurst Regional Council,** municipal drinking water supply, Australia
Application:	Online monitoring of raw water quality for drinking water production – installed at pumping station located in a 21 km long pipeline between reservoir and drinking water production facility
Task:	Ensuring safety of drinking water supply
Target organism:	E. coli
Contact:	through **Optimos Solutions**, partner for Australia & NZL Mr. Phil Krasnostein, Director, phil@optimosgroup.com.au, Mobile: +61 409359155

Customer:	**MEKOROT**, Israel's public water supplier
Application:	Online monitoring of raw water network for drinking water supply with ColiMinder ERU
Task:	Ensuring safety of drinking water supply
Target organism:	E. coli and Total Activity (ALP)
Contact:	**Dalit Vaizel-Ohayon,** PhD, Chief Bacteriologist Email: dvaizel@mekorot.co.il

Customer:	**Ville de Laval, municipal drinking water supply, Canada**
Application:	The ColiMinder is installed at raw water intake from river "Rivière des Mille Îles" to a drinking water plant
Task:	Monitoring of microbiological quality of raw water
Target organism:	E. coli
Contact:	via VWMS

SURFACE & BATHING WATER

Customer:	**Sydney Water** – Sydney's public Water Company
Application:	monitoring fecal contamination of urban bathing water sites at Sydney Harbor to safeguard bathing water quality
Task:	Enabling quick reaction on contamination events
Target organism:	Enterococcus, E.coli
Contact :	through **Optimos Solutions**, partner for Australia & NZL Mr. Phil Krasnostein, Director, phil@optimosgroup.com.au, Mobile: +61 409359155

Customer:	**Eau de Paris -** public water utility for Paris
Application:	using 2 ColiMinder devices for 1. bathing water monitoring in different public recreation areas, especially during **Olympic Games 2024** 2. deployment in raw water monitoring for **drinking water production** 3. monitoring combined sewer overflows in rivers and recreational waters 4. monitoring drinking water production
Task:	ensuring safety in bathing waters / enabling quick reaction on contamination events / monitoring drinking water safety
Target organism:	E. coli, Enterococcus and Total Activity
Contact :	**Dr Sophie Haenn,** Microbiologist R&D, sophie.haenn@eaudeparis.fr

Customer:	**Ville de Paris – Government of the City of Paris**
Application:	using 2 ColiMinder for surface water monitoring of a bathing scene at Seine River, **dedicated for swimming competition at Olympic Games 2024.** As per a decision of the Paris' Olympic Organization Committee in October 2022, ColiMinder results will be used for final decision-making whether to use the Seine for official swimming competition.
Task:	Ensuring safety in bathing waters, enabling quick reaction on contamination events (closing/opening beaches)
Target organism:	E. coli, Enterococcus in some cases
Contact :	**Marion Delarbre,** Bureau de Miguel GILLON-RITZ, Responsable du pôle d'expertise grand cycle et qualité de l'eau, Direction de la Propreté et de l'Eau, marion.delarbre@paris.fr

Ville de Paris

Customer:	**EKEO, Energizing Kowloon East Office, Smart City Project, together with CEDD (Civil Engineering Development Department), Hong Kong**
Application:	Monitoring E. coli levels at Kwun Tung Typhoon Shelter at the former airport in Hong Kong, an urban development site
Task:	Monitoring fecal contamination in surface & recreational water
Target organism:	E. coli saline
Contact :	Guyline Asia Ltd. (Distribution partner for Hong Kong) Ms Wendy Lai, General Manager, GM@guyline.com.hk

發展局 Development Bureau
Energizing Kowloon East Office 九龍東辦事處

Customer:	**Sweden Water Research – Urbana Bad Project, Sweden**
Application:	Deployment of 3 ColiMinder devices for monitoring bathing water quality, framed by an urban bathing water project in Helsingborg and Malmö.
Task:	Monitoring fecal contamination levels in bathing waters, enabling quick reaction on contamination events.
Target organism:	E. coli and Enterococci
Contact:	Markus Fröjd, Head of Projects at Sweden Water Research Markus.Frojd@swrab.se, mobile : + 46 722 25 96 56

sweden water research

HELSINGBORG

City of Malmö

Customer:	**Ville de L'Assomption**, municipal bathing water and drinking water, Canada
Application:	The ColiMinder is installed at raw water intake from a river to a drinking water production, at the same time monitoring a bathing site nearby.
Task:	Monitoring of microbiological quality of surface and raw water
Target organism:	E. coli
Contact:	via VWMS

NIL MAGNUM SINE LABORE
L'ASSOMPTION
Ville de culture et de patrimoine

Customer:	**KIT – Karlsruhe Institute of Technology**
Application:	Surface water monitoring in different applications using ColiMinder Mobile. Current project: karstic spring monitoring throughout Europe
Task:	scientific studies, validations, research projects in real world setting

Target organism: E. coli

Contact: Prof. Nico Goldscheider, Nico.goldscheider@kit.edu
Institute of Applied Geosciences

Karlsruher Institut für Technologie

Customer: **Université Polytechnique de Montréal**

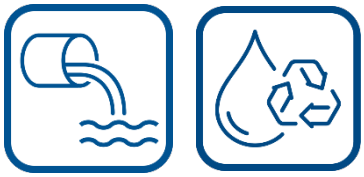
Application: monitoring of surface water and raw water in drinking water production, bathing water and sewage plant discharge using 6 ColiMinder devices

Task: scientific validation of the technology; helping municipalities and other institutions to ensure water safety

Target organism: E. coli

Contact: **Sarah Dorner, PhD,** sarah.dorner@polymtl.ca
Canada Research Chair in Source Water Protection
Department of Civil, Geological and Mining Engineering

POLYTECHNIQUE MONTRÉAL
LE GÉNIE EN PREMIÈRE CLASSE



WASTEWATER & WATER RE-USE

Customer: **MWR Denver – MetroWaterRecovery Denver / Colorado**

Application: Pilot project for using the ColiMinder to control disinfection

Task: Monitoring of E. coli levels prior to disinfection for adjusting disinfection intensity to actual microbiological load.

Target organism: E.coli

Contact: Mr Dan Freedman, Dfreedman@MetroWaterRecovery.com

METRO WATER RECOVERY℠

Customer: **LZWW – Life Zero Waste Water –** EU funded project with several stakeholders: FCC Aqualia, Canal de Isabel II, Simbiente Ingenería and scientific partners, deployed at Valdebebas WWTP (Madrid, Spain)

Application: Project "Combined treatment of urban waste water and the organic fraction of municipal solid waste in WWTPs with positive energy balance for populations of less than 50,000 IE.

Target organism: E.coli

Task: Providing reliable sensor data for a development of the smart system for the control and monitoring of water quality in effluent.

Contact: via VWMS GmbH I www.lifezerowastewater.com

ZERO WASTE WATER

Customer: **DSD - Drainage Service Department**, public wastewater institution Hong Kong

Application: Sewage treatment monitoring and controlled disinfection at Stonecutters Island Sewage Treatment Works (SCISTW), one of the world's largest wastewater treatment plants.

渠務署
Drainage Services Department

Target organism: E. coli (saline water)

Task: official statement from DSD dated 2018:

DSD and ARUP present an innovative project at Hong Kong´s Stonecutters Island Treatment Works (SCISTW).

As an attempt to adopt new technology in order to improve efficiency and efficacy of sewage treatment, DSD and ARUP are trialing ColiMinder technology at HK Stonecutters Island. The treatment works at Stonecutters Island consists of Chemically Enhanced Primary Treatment (CEPT) and disinfection with Sodium Hypochlorite. The SCISTW services a population of more than 5 Million and with a design ADWF of 2,450,000 m^3/d is it one of the world's largest CEPT wastewater treatment plants.

Sodium Hypochlorite for disinfection consists as one of the significant operating costs. A number of inherent technical issues, including variable wastewater chlorine demand and fluctuating environmental conditions provide a challenge for the operators to optimize the chemical consumption while meeting disinfection objectives.

(..) The trial has been under way since December 2017 and so far over 5,000 measurements have been recorded without failure or need for re-calibration of the unit. While the trial period is planned for 12 months in order to cover all expected process conditions, initial performance indicates that the equipment is reliable and the relationship between ColiMinder and Laboratory results is positive.

Contact: ATAL Engineering Ltd , ColiMinder distributor for Hong Kong
Ms. Lu Xiu Qing, Tracy, xqlu@atal.com

MEMBRANE INTEGRITY

Customer: **Herlev Hospital in cooperation with DHI Group, Denmark**

Application: DHI acted as engineering company for a hospital sewage plant discharge quality monitoring, using the ColiMinder to monitor membrane integrity in a public hospital's MBR plant. **Project has been awarded by Danish EPA as "BAT" (Best Available Technology**), roll-out to other hospitals is scheduled for 2025.

Task: Fully automated contamination monitoring of sewage plant discharge before drained into a recreational area. Automatic warnings in case of increased contamination due to broken UF membranes.

Target organism: E. coli

Contact: **Ulf Nielsen (formerly DHI /** Ultraaqua, Denmark), uni@ultraaqua.com

DHI

REGION Herlev Hospital

PROCESS WATER

Customer:	**Bipso Bracco, Pharma production, Germany**
Application:	Pilot phase 1 successfully completed, current pilot phase 2 in place. Monitoring of microbiological quality levels in pharma production, from RO water to ultra-pure water and WFI (water for injection).
Task:	Ensuring safety and efficiency of production process, protection from product re-calls.
Target organism:	Total Activity (ALP)
Contact:	VWMs distribution partner for DACH and Western Europe Sagamo AG, Reinhold Keller I rk@sagamo.ch

Customer:	**Producer of metal working fluids, Europe** **(**Must not be named due to an existing NDA).
Application:	Monitoring of microbiological contamination in metal working fluids in industrial production process.
Task:	Automated quality monitoring to enable adjustment of disinfection intensity.
Target organism:	Total Activity (ALP)
Contact:	via VWMS

AWARDS won by ColiMinder

2021:

December 2021:

Winner of the TechChallenge by The Water Council, Milwaukee, US

"Microbial Control in Distribution systems and in buildings"

2019:

September 2019:

Winner of the MEKOROT -Bacterial Detection Challenge

GLOBAL CHALLENGE: ISRAEL: BACTERIA DETECTION

CONNECTING INNOVATIVE SOLUTIONS WITH THE MEKOROT NATIONAL WATER UTILITY - ISRAEL

2016:

October 2016 **WaterSmart Innovations Conference**

LAS VEGAS Channels for Innovation Summit:

- **MOST INNOVATIVE NEW TECHNOLOGY**

July 2016 **Singapore Water Week**

TechXchange: WINNER OF INNOVATION AWARD

- **1st Place voted by the Jury**
- **1st Place voted by TechXchange Participants**

Jan 2016 **International Water Summit ABU DHABI**

Innovate@IWS: FIRST PLACE INNOVATOR

- **WINNER OF INDUSTRIAL WATER SECTOR**

2015:

- 3/2015 - Neptun Water- Award
- 3/2015 - Science2business Award 2015

2014 :

- 12/2014 - STEP AWARD – Germany – TOP 20
- 11/2014 - Austrian Young Entrepreneurs Competition – Winner Category Environment
- 11/2014 - Austrian Young Entrepreneurs Competition - 9. Rank
- 10/2014 - NÖ Future Award – 2. Rank
- 10/2014 - Green Business Award 2014 – 1. Rank
- 10/2014 - Cisco + Pioneers – Innovation Challenge – Top 50
- 10/2014 - Innovationspreis 2014 – outstanding Innovation
- 09/2014 - DAPHNE Environment Award – awarded Excellent Project

List of scientific publications

List of peer-reviewed publications

Mounia Hachad, Jean-Baptiste Burnet, Émile Sylvestre, Sung Vo Duy, Richard Villemur, Sébastien Sauvé, Michèle Prévost, Judy Y. Qiu, Xiaoli Pang, Sarah Dorner, β-D-glucuronidase activity triggered monitoring of fecal contamination using microbial and chemical source tracking markers at drinking water intakes, Water Research, Volume 254, 2024, 121374, ISSN 0043-1354, https://doi.org/10.1016/j.watres.2024.121374.

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Favere, J., Waegenaar, F., Boon, N., & De Gusseme, B. (2021). Online microbial monitoring of drinking water: How do different techniques respond to contaminations in practice? *Water Research*, 117387. https://doi.org/10.1016/j.watres.2021.117387.

Burnet, J.-B.; Habash, M.; Hachad, M.; Khanafer, Z.; Prévost, M.; Servais, P.; Sylvestre, E.; Dorner, S. (2021). Automated Targeted Sampling of Waterborne Pathogens and Microbial Source Tracking Markers Using Near-Real Time Monitoring of Microbiological Water Quality. Water, 13, 2069. https://doi.org/ 10.3390/w13152069

Sylvestre, É., Prévost, M., Burnet, J.-B., Smeets, P., Medema, G., Hachad, M., & Dorner, S. (2021). Using surrogate data to assess risks associated with microbial peak events in source water at drinking water treatment plants. *Water Research*, *200*, 117296. https://doi.org/10.1016/j.watres.2021.117296. *In press*

Sylvestre, É., Prévost, M., Burnet, J.-B., Pang, X., Qiu, Y., Smeets, P., Medema, G., Hachad, M., & Dorner, S. (2021). Demonstrating the reduction of enteric viruses by drinking water treatment during snowmelt episodes in urban areas. *Water Research X*, *11*, 100091. https://doi.org/10.1016/j.wroa.2021.100091

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Sylvestre, É., Burnet, J.-B., Smeets, P., Medema, G., Prévost, M., & Dorner, S. (2020). Can routine monitoring of *E. coli* fully account for peak event concentrations at drinking water intakes in agricultural and urban rivers? *Water Research*, *170*, 115369. https://doi.org/10.1016/j.watres.2019.115369

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Stadler, P., Loken, L. C., Crawford, J. T., Schramm, P. J., Sorsa, K., Kuhn, C., Savio, D., Striegl, R. G., Butman, D., Stanley, E. H., Farnleitner, A. H., & Zessner, M. (2019). Spatial patterns of enzymatic activity in large water bodies: Ship-borne measurements of beta-D-glucuronidase activity as a rapid indicator of microbial water quality. *Science of The Total Environment*, *651*, 1742–1752. https://doi.org/10.1016/j.scitotenv.2018.10.084

Ender, A., Goeppert, N., Grimmeisen, F., & Goldscheider, N. (2017). Evaluation of β-d-glucuronidase and particle-size distribution for microbiological water quality monitoring in Northern Vietnam. *Science of The Total Environment*, *580*, 996–1006. https://doi.org/10.1016/j.scitotenv.2016.12.054

Stadler, P., Blöschl, G., Vogl, W., Koschelnik, J., Epp, M., Lackner, M., Oismüller, M., Kumpan, M., Nemeth, L., Strauss, P., Sommer, R., Ryzinska-Paier, G., Farnleitner, A. H., & Zessner, M. (2016). Real-time monitoring of beta-d-glucuronidase activity in sediment laden streams: A comparison of prototypes. *Water Research*, *101*, 252–261. https://doi.org/10.1016/j.watres.2016.05.072

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Beyer-Reiter, J., & Vogl, W. (2019). *Rapid detection of microbiological contamination by measurements of specific enzymatic activity*. IWA-HRWM, Vienna.

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Koschelnik, J. (2014b). *Rapid analysis of ß-D-glucuronidase activity in water using fully automated technology*. Water Pollution 2014, Portugal.

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