



Detection and Quantification of SARS-CoV-2 in Wastewater NATA Accredited

A method for early warning of a potential SARS-CoV-2 outbreak

Studies have established that wastewater can be used as a lead indicator of SARS-CoV-2 infection in a population. Regular and ongoing monitoring of wastewater effluent can provide an early indication of an outbreak, possibly even while the population in question is asymptomatic but potentially contagious.

SARS-CoV-2 can be found 3 - 7 days in advance of symptoms through wastewater testing

Wastewater sampling is a non-invasive and cost-effective mechanism to monitor the evolution of the SARS-CoV-2 pandemic. As part of the Eurofins Sentinel™ program, wastewater testing can be organised with minimal disruption.

Testing for SARS-CoV-2 in wastewater can:

- Monitor larger populations in a cost-effective way
- Provide data to track the prevalence of the virus and spread of infection
- Predict outbreaks prior to clinical diagnosis
- Account for those who are asymptomatic or have not been clinically tested

Advantages of Wastewater Based Epidemiology (WBE) by Testing for SARS-CoV-2

Get Ahead

SARS-CoV-2 can be detected 3 - 7 days in advance of symptoms being present. Wastewater surveillance allows you to predict COVID-19 outbreaks before clinical ensuring appropriate measures are taken to minimise the impact.

Big Picture

Through one wastewater sample, we can monitor thousands of people. This data is particularly informative to those areas with low clinical COVID-19 testing rates.

Focused Testing Spend

Wastewater testing is non-invasive and much more cost-effective for understanding the impact of COVID-19 in a community. Results allow you to look at the monitored populations to then determine the focus of your clinical testing program.

Measure Trends

By utilising the Cycle Threshold (Ct) score, leaders can establish trends in current outbreaks, identify new outbreaks and understand the prevalence of infection - allowing you to get ahead of the virus.

Sampling and Shipping

Untreated wastewater samples should be collected from the waste stream or collection point at a flow-proportional or time-dependent frequency using a composite auto-sampler. A subsample is then taken from the composite and decanted to a supplied 500 mL bottle. Once bottled, samples should be chilled. Samples should be expedited in the provided shipping container with ice packs (return label provided).

Logistical Support

If you would like to discuss logistical details for your upcoming projects then please contact your local Analytical Service Manager or one of our Business Development Team listed below.

Global Leader - Results You Can Trust

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Eurofins | Environment Testing EnviroNote 1110 – 26 November 2020

Frequently Asked Questions

What is the SARS-CoV-2 Virus?

Severe acute respiratory coronavirus 2 (SARS-CoV-2) is a newly discovered virus, which is the source of the pandemic outbreak of the COVID-19 disease. This virus causes mild to severe respiratory illness and is most commonly transmitted from person-to-person via droplets or contact. Due to the virus potential for a prolonged viability on surfaces, transmission through contaminated surfaces has been considered to be a possible route of human exposure.

What analytical services are available for testing SARS-CoV-2 in wastewater?

The Eurofins wastewater testing method to detect SARS-CoV-2:

- Detects and confirms SARS-CoV-2 by targeting two genome sequences in accordance with WHO recommendations.
- Is highly sensitive – Studies indicate 1 infected person out of a community of up to 1000 persons is detectable.
- NATA accredited.

What is the value in wastewater testing for SARS-CoV-2?

Regular and on-going monitoring of wastewater effluent can provide an early indication of SARS-CoV-2 outbreak in a population, possibly even while occupants are asymptomatic but potentially contagious. In addition, testing can provide trend data indicative of 'viral load' over time.

Who is wastewater testing applicable for?

Institutions/companies/catchment managers where populations reside or conduct businesses such as:

- Government bodies including federal, State, Territory and local government offices
- Production sites, businesses, hospitals, nursing homes, prisons, schools and universities, military bases, etc.

What apparatus & equipment is required for wastewater sampling?

The use of a Composite autosampler is recommended (e.g. Teledyne ISCO). Composite autosamplers can be provided or alternatively, sourced separately from independent suppliers (hire or purchase). Eurofins provides the sub-sampling kit, (packaging, ice and return shipping label) and can assist in the sourcing of sampling

equipment. Eurofins can arrange 'turn-key' sampling solutions if required.

What is included in wastewater sampling kit?

Eurofins provides a kit for in-house (self) sampling that includes:

- 500 mL plastic sample container(s)
- Sample label(s)
- Parafilm™
- Alcohol wipes
- Chain of custody
- 2 plastic zipper bags for each sample container
- Absorbent pad(s) for each sample container
- Packing list
- Shipping box or eskies (used for return shipping)

What is the turnaround time?

Test results are reported within 48 hours of sample receipt at the laboratory (business days only).

What is the suggested testing frequency?

Sampling frequency should be determined based on monitoring objectives and risk profile. Daily composite samples are recommended. Factors to consider when determining test frequency include:

- Local community viral spread statistics
- Commuting behaviour of the population
- Population vulnerability (e.g.: age, immuno status)
- Budgetary considerations

How should results be interpreted?

Test results are reported qualitatively as 'Detect' or 'Not Detect'. Quantitative PCR (qPCR) is performed on positive samples and results are reported as copy numbers/mL which can be used as an indication of the change in viral load over time. The qPCR tests do not assess the viability of test organisms.

What does Ct stand for?

Ct stands for "cycle threshold" which can be used to trend RNA content for samples taken from the same waste stream, by the same sampling methodology under similar conditions. Ct is inversely proportional to the RNA content, meaning the higher the Ct number, the lower the amount of SARS-CoV-2 specific RNA.

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