

# SARS-COV-2 SAMPLING GUIDANCE FOR WASTEWATER



**Pace Analytical® offers testing of wastewater by Real Time, quantitative Polymerase Chain Reaction (RT-qPCR) for SARS-CoV-2, the virus responsible for COVID-19.** Current studies indicate that remnants of SARS-CoV-2 are present in wastewater, providing a potentially effective marker for measuring the prevalence of COVID-19 in communities and predicting outbreaks.

The qPCR test detects RNA, the genetic signature of SARS-CoV-2, in wastewater. This is done by quantifying viral RNA using Real Time (RT) reverse transcription Polymerase Chain Reaction (qPCR). The cycle threshold (CT) values obtained are then used to quantify the copies of RNA for two variants of SARS-CoV-2 in the wastewater samples: SARS-CoV-2 N1 and SARS-CoV-2 N2. The results are reported as copies of viral RNA/mL.



The purpose of this information sheet is to provide you with recommendations for creating a wastewater sampling program for SARS-CoV-2 in your community.

## Sampling Methods

There are no prescribed methods for collecting samples for the purposes of monitoring the level of RNA fragments from the SARS-CoV-2 virus in wastewater, however, we typically see clients use one of two approaches that are consistent with traditional means of collection often deployed by wastewater sampling professionals:

**Grab Sample** – In this method, the sample container is dipped into the raw wastewater flow to collect the sample.

**Composite Sample** – Composite samples are collected by utilizing an automatic sampling device (ISCO, Sigma, etc.) to collect a sample representing a specified period (usually 24 hours) or one that is proportional to the flow. Once the composite sample is pulled, the sampler pours a portion from the large, refrigerated fill jar into the sampling container.

Composite sampling equipment can be rented or purchased separately from vendors like [Field Environmental Instruments](#) or [Pine Environmental](#).

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## Which Method Should You Use?

Grab samples require less specialized equipment and can be useful to help pinpoint sources of spikes proximal to point source locations at specific times.

Composite samples are more helpful than grab samples when the flow is more volatile. For example, if you are looking to monitor for a spike in cases at a vacation resort, a composite sample that is proportional to the flow may give you a more accurate picture than a simple grab sample. Likewise, a sample that covers a twenty-four-hour period may be more helpful than a grab sample for a high-traffic area like a shopping mall.

Of course, many factors can influence the type of sampling method you use and how you implement it. Our team of specialists would be happy to discuss your project objectives and recommend sampling methods, parameters, and protocols that will deliver the data you need.

## Sampling Specifications



Based on our extensive experience sampling wastewater for emerging and regulated contaminants, Pace Analytical® recommends the following specifications:

Container:	250ml HDPE
Preservation:	No chemical preservative. Cool to 6°C
Method:	qPCR (quantitative)
Units:	RNA Cop/ml (RNA Copies Per Milliliter)
Calibration Range:	As low as 2.6 copies/mL

## Shipping Samples to Pace Labs

Once collected, samples should immediately be placed back inside the liner bag within the sample cooler. The liner bag is then filled with real ice around the sample bottle and tied off. Finally, the cooler lid should be closed and taped around the junction between the cooler lid and the cooler.

The cooler should then be shipped via overnight carrier to:

## Sample Receiving Pace National Center for Testing & Innovation

12065 Lebanon Rd.  
Mt. Juliet, TN  
37122  
(800) 767-5859