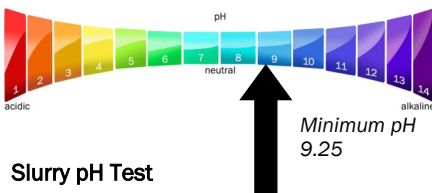


# ERADICATE & PREVENT BACTERIA

## TECH TIPS



Slurry pH Test

Bacteria growth can be detrimental to both the performance and life of a slurry. Due to the potential for bacteria in a slurry, it is important to know how to test your slurry to eradicate bacteria growth and prevent the contamination from occurring. Major indicators of bacterial contamination can include a decrease in slurry pH or slurry odor. If bacterial contamination is left untreated, slurry gelation can occur.

### Test Your Slurry for Bacteria

#### Conduct a Slurry pH Test

A minimum pH of 9.25 is common for most colloidal silica-based systems, however finding a change in pH is just as important as the actual pH result itself. If the pH is lower than 9.25, or there is a sudden, drastic drop in pH, bacterial contamination could be a possibility and the binder should be separated from the slurry and tested for bacteria.

#### Conduct a Bacteria Test

Culture slides are used to test for the presence of bacteria in a slurry. At R&R, we use MCE Combi Dip Slides. They are available from Metal Working Equipment & Chemical Company Inc. at 518.523.2355. Procedures for use are always provided by the manufacturer of the culture slides. To test for bacteria, separate the binder from the slurry prior to dipping the culture slide into the sample.

#### Conduct an Accelerated Gelation Test

An accelerated gelation test is performed by separating the binder from the slurry and storing the binder in a 60 °C oven for 24 hours. If the binder does not gel, it is still healthy and can be treated for bacteria. If the binder gels, it is unhealthy and should be discarded.

#### Unable to Test at Your Facility?

If you do not have the capabilities to conduct a bacteria or gelation test at your facility, send us slurry sample and we will test it for you.

Send via UPS to:

Ransom & Randolph  
Attn: Technical Department  
3535 Briarfield Boulevard  
Maumee, Ohio 43537

Please note whether your sample is for a bacteria or gelation test.

### Eliminate Bacteria in Your Slurry

#### Treat a Healthy Slurry

If your slurry has bacteria, add bactericide to the slurry in quantities according to the amount of bacterial contamination. R&R suggests using Grotan bactericide. Refer to the Grotan product data sheet for suggested addition amounts. R&R does not recommend using bleach to treat bacterial contaminations.

#### Treat an Unhealthy Slurry

If your slurry failed an accelerated gelation test and has bacteria, discard the slurry. Clean the tank thoroughly with bleach before fresh slurry is added.



Bacteria Test



Accelerate Gelation Test



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# ERADICATE & PREVENT BACTERIA

## Water Purification

Microorganisms (i.e., bacteria, fungi, algae) can be found in the water supply. This is often caused by poor housekeeping, especially in lines/hoses or storage containers. Microorganisms have a detrimental effect on colloidal stability. They secrete a low pH substance during their metabolism. Therefore, any contamination by microorganisms should be prevented.

For more information on water purification, refer to R&R Tech Tip: Purified Water for Slurries.

## Prevent Common Causes of Bacterial Contamination in Your Slurry

Cause	Prevention
Contaminated Water Source	Test a water sample for bacteria. If the water source has bacteria, it should be replaced with purified water. If the water source is deionized by reversed osmosis, it may help to change the filter. If the water source is treated with UV light, it may help to change the light source.
Airborne Bacteria	Keep slurries covered when not in use.
Contaminated Pre-wet	Ensure that pre-wets are not contaminated. If they are, they will contaminate other slurries. Culture slides are also used to test for the presence of bacteria in a pre-wet. To test for bacteria, dip the culture slide into a sample of pre-wet. Clean pre-wet tanks and replace pre-wet as needed.
Dirty Equipment	Dirty equipment (i.e., Zahn cups, gloves, stirring paddles, etc.) coming into contact with your slurry can contaminate it. Ensure that Zahn cups are kept very clean. If cups are stored in water, replace the water weekly, at minimum. If Zahn cups are stored out of water, keep them clean, dry and stored in a clean, dry location. All equipment coming into contact with the slurry should be kept clean, and stored in a clean, dry location.
Dirty Slurry Tank	When replacing contaminated slurry in a tank, remove contaminated slurry and clean the tank with bleach before replacing the slurry.
High Slurry Temperature	Monitor slurry temperature, staying within $\pm 2^\circ$ of shell room temperature, and watch for any drastic spikes. If a contaminated slurry is kept at a high temperature, bacteria growth could accelerate. To help monitor slurry temperature, put your mixer on a timer so that it is running on intervals with small breaks. Alternatively reduce RPM or install chillers.
Growth During Storage	Purified water should be stored in clean, opaque containers to prevent introduction of light.
Purification Equipment	Filters should be replaced regularly. Lines should be rinsed regularly. Lines should be opaque to prevent the introduction of light.



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