



3Ts Flushing Best Practices

Flushing is a tool schools can use as a general best practice to improve overall water quality and during flush sampling (i.e., samples targeting the plumbing inside of the wall).

LEAD IN DRINKING WATER IN SCHOOLS

The potential for lead to leach into water can increase the longer the water remains in contact with lead in plumbing. As a result, facilities with intermittent water use patterns, such as schools, may have elevated lead concentrations.

Testing helps evaluate plumbing systems and materials so that targeted remediation efforts can be taken. It is a key step in understanding the problem, if there is one, and designing an appropriate response.

EPA developed the *3Ts for Reducing Lead in Drinking Water* to assist schools and child care facilities with their drinking water testing program. The 3Ts applies a Training, Testing, and Taking Action approach.

WHAT IS FLUSHING?

“Flushing” involves opening taps and letting the water run to remove water that has been standing in the interior pipes and/or the outlets. The flushing time can vary by the type of outlet being cleared.

The degree to which flushing helps reduce lead levels can also vary depending upon the age and condition of the plumbing and the corrosiveness of the water.

Flushing is a tool, but only when used appropriately. This fact sheet helps you understand when flushing should be used, when it shouldn't, the pros and cons, and how to conduct flushing in your facility.

FLUSHING TO IMPROVE WATER QUALITY

In schools and child care facilities, establishing an ongoing flushing program is one of the quickest and easiest solution to ensure the water quality is preserved by decreasing water age.

In addition, flushing does not require installation or maintenance of water treatment equipment or complex instructions. Flushing can be used as a regular practice to ensure the water is regularly moving.



FLUSHING AND SAMPLING FOR LEAD

When sampling for lead, it is important that the sample represents what is being consumed. For this reason, EPA typically encourages schools not to collect samples in the morning after vacations, weekends, or holidays because the water will have remained stagnant for too long and would not represent the water used for drinking during typical school days. It is recommended to flush after these breaks to maintain water quality.

EPA does not recommend flushing for the sole purpose of sampling but rather as a regular practice to ensure the water is regularly moving. Flushing right before sampling may cause results showing lower than representative lead levels in the water. Flushing is only appropriate during sampling when conducting follow-up flush sampling or sequential sampling to identify potential lead concerns in the interior plumbing.

“Flushing can be used as a regular practice to ensure the water is regularly moving.”

FLUSHING AND REMEDIATION FOR LEAD

Flushing can be a quick and easy solution to high lead levels, especially when contamination is localized in a small area or in a small building. It can be used as a short-term solution as more permanent solutions are being implemented.

Automatically flushing individual problem outlets or all outlets may also represent an albeit ongoing, solution. This would involve the use of time-operated solenoid valves that can be installed and set to automatically flush the main pipes (headers) of the system. It is important to note that solenoid valves are not practical for flushing water coolers.



An important consideration when utilizing flushing for remediation is how often flushing should occur throughout the week and possibly throughout the day, and whether it is feasible for your facility. Depending upon the age and condition of the plumbing and the corrosiveness of the water elevated lead levels can return relatively quickly following flushing.

Unless you can ensure lead levels remain low throughout the day, it is not recommended to flush only once a day or once a week as a solution to high lead levels. Flushing immediately prior to use may be a short-term solution, in conjunction with signage and schedules.

Make sure to conduct samples after implementing flushing for remediation so you can ensure the water being provided does not contain elevated lead levels.

THE DOS AND DON'TS OF FLUSHING

The Dos

- Utilize flushing as a routine practice to improve overall water quality;
- Flush when it is included in a sample instruction (i.e., taking a follow-up flush sample);
- Flush after remediation. In addition to replacing or removing lead containing plumbing or fixtures. Flushing can help clear out debris or lead particulates that may be released when remediation occurs.



For more information, visit: [epa.gov/safewater/3Ts](https://www.epa.gov/safewater/3Ts)

The Don'ts

- Flush right before sampling. Flushing prior to sampling may cause samples to not be representative of daily consumption.
- Flush to reduce lead levels in coolers. Flushing is not recommended as a practical remedy for water coolers.
- Flush as a sole effort after finding unacceptable lead levels in your school, without ensuring lead levels will remain low throughout the day.
- Flushing as a long-term remediation effort alone. Flushing can be a measure that could be paired with permanent remediation like replacement and/or removal.

TIPS FOR DEVELOPING A FLUSHING PLAN

When using flushing as a regular practice or as a short-term remediation effort:

- Determine how water enters and flows through your facility by developing a plumbing profile;

- Locate all water outlets that are used for consumption;
- Utilize signage to indicate when and for how long flushing needs to occur at each outlet;
- Identify options for collection and nonpotable re-use of flushed water (e.g., plant watering); and
- Develop a system for accountability, including identifying one person who is in charge and record keeping.

ADDITIONAL RESOURCES

- **3Ts for Reducing Lead in Drinking Water (PDF) (2018)**. Link: <https://www.epa.gov/dwreginfo/3ts-reducing-lead-drinking-water-schools-and-child-care-facilities>
- **3Ts Full Toolkit (Website) (2018)**. Link: <https://nepis.epa.gov/safewater/3Ts>

Exhibit 1: 3Ts Flushing Instructions

Remember that each drinking water outlet should be flushed individually; flushing a toilet will not flush your water fountains. All flushing should be recorded in a log submitted daily to the office, or person, in charge of this program.

- Locate the faucet furthest away from the service line on each wing and floor of the building, open the faucets wide, and let the water run for 10 minutes. For best results, calculate the volume of the plumbing and the flow rate at the tap and adjust the flushing time accordingly. This 10-minute time frame is considered adequate for most buildings.
- Open valves at all drinking water fountains without refrigeration units and let the water run for roughly 30 seconds to one minute, or until cold.
- Let the water run on all refrigerated water fountains for 15 minutes. Because of the long time period required, routinely flushing refrigerated fountains may not be feasible. It may therefore be necessary, and more economical, to replace these outlets with lead-free, NSF-approved devices.
- Open all kitchen faucets (and other faucets where water will be used for drinking and/or cooking) and let the water run for 30 seconds to one minute, or until cold.



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