



Ultrasonic cleaning solutions: Are you getting the most from yours?

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Placing instruments in an **ULTRASONIC CLEANER** is the most common method used by dental teams to clean instruments prior to **sterilization**. The ultrasonic activity — also known as cavitation — combined with detergent solutions, removes blood, saliva, and other debris from instruments. Without this cleaning process, heat sterilization of dental instruments is not effective.

But which ultrasonic solution is most appropriate? To determine this, let's take a look at the desired characteristics of an ultrasonic cleaning solution.

One of the most important characteristics is that the solution be compatible with the dental instruments and other items that will be cleaned. But the solution must also be compatible with the tank or chamber where the instruments are placed, which is metal.

Using a solution that has a low pH or acid, could potentially damage the instruments and the tank. Most ultrasonic solutions are neutral pH or alkaline. Both neutral and alkaline solutions are effective cleaners and non-damaging to the metals typically used for dental instruments; however, an alkaline solution is the product of choice in areas where there is hard water since these solutions are more effective at managing mineral deposits.

Mineral deposits can cause discoloration and/or pitting on some instruments. It is very important to note that the purpose of the ultrasonic solution is to clean, not to disinfect.

Sometimes a disinfecting solution is mistakenly used in the ultrasonic, which may not be a desirable pH. This could damage instruments and the ultrasonic unit. The only solution that should ever be used in an ultrasonic cleaner is ultrasonic cleaning solution.

In addition, if instruments are presoaked to prevent drying out of debris or to help remove debris prior to cleaning, this should also be done in an ultrasonic cleaning solution

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(compatible with instruments), not in a disinfecting solution. It is especially important to note that high-level disinfectants, such as glutaraldehydes, are particularly damaging to instruments, and can make blood and other organic materials much harder to remove.

The most recent developments in ultrasonic cleaning solutions have been the addition of enzymes to boost the cleaning properties of the solutions. The enzymes, or proteins, act as catalysts to break down organic materials, such as blood and saliva. Enzymatic cleaners will vary by the type of enzymes that are used.

The two most commonly added enzymes in ultrasonic cleaning solutions are amylase and protease. Protease, or proteolytic enzymes, are very effective at removing proteins, such as blood and saliva. Amylase enzymes are more effective in removing carbohydrates and starches. Both of these enzymes can be combined in the same solution to enhance effectiveness.

Some ultrasonic cleaning solutions also contain rust inhibitors to protect instruments, especially hinged instruments. The products also come in various formulations: liquid concentrate, tablets and powders for use in the ultrasonic or as presoaks. In addition, there are several products available as gel or foam sprays that can be applied to instruments prior to placement in the ultrasonic unit. This is particularly helpful with surgical instruments.

Ultrasonic solutions should be changed daily, or sooner if they become cloudy or contain a great deal of debris. Since the solution is contaminated, items should never be placed into the solution or removed with bare hands. Also, the lid to the ultrasonic unit should always be on when the unit is running to prevent any aerosolization of the solution.

The last consideration when selecting an ultrasonic cleaning solution is environmental. Since many detergents still contain phosphates, which are harmful to the water supply, look for products that are very low in phosphates or are phosphate-free.

Tell me what you think. What are some questions you have or topics that you would like explored in future columns? I would love to hear from you. Send me an email at mary@marygovoni.com. **DE**

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