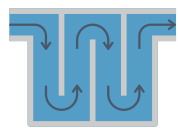


CLEAN-IN-PLACE

5 STEPS IN A COMMON FOOD, DAIRY, & BEVERAGE CIP CYCLE

1 PRE-RINSE



The pre-rinse is a very important step in the CIP process because a well-monitored and well-executed pre-rinse makes the rest of the wash cycle predictable and repeatable.

- Wets the interior surface of the lines and tanks
- Removes most of the remaining residue
- Dissolves sugars and partially melts fats
- Provides a non-chemical pressure test of the CIP flow path

2 CAUSTIC WASH

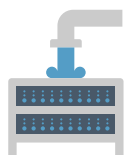
(140°–185° F)



Caustic washes soften fats, making them easier to remove. Also known as caustic soda, sodium hydroxide or NaOH, the alkali used in caustic washes have a very high pH in a concentration range of 0.5-2.0%. Concentrations as high as 4% may be used for highly soiled surfaces.

Caustic is typically used as the main detergent in most CIP wash cycles. A non-foaming formulation can help reduce pump cavitation and increase efficiency. The first wash is sent to the drain and the second can be recovered and re-used.

3 INTERMEDIATE RINSE



Fresh water flushes out residual traces of detergent remaining from the caustic wash.

Use proper instrumentation during each step of the CIP Cycle, including rinsing, ensures proper cleaning.

- Level Transmitters and Probes monitor tank levels of wash and rinse tanks.
- Flow Transmitters ensure optimum flow for spray devices to precisely control wash and rinse steps.
- Conductivity Transmitters ensure chemical levels are hitting predetermined set point.

4 FINAL RINSE



Rinse with either DI, RO, or city water to flush residual cleaning agents.

In many systems, the final rinse water may be recovered and reused as the pre-rinse solution for the next cleaning cycle. The residual heat and chemicals it retains from the final rinse will help make the next pre-rinse more effective and economical.

5 SANITIZING RINSE



May be required to help kill microorganisms before starting the next production run. For many years, various hypochlorite solutions (potassium, sodium or calcium), also known as “hypo,” have been used as sanitizers in many CIP cycles.

The active ingredient in a sanitizing rinse is chlorine (bleach).

In recent years more sanitation managers have turned away from bleach-based sanitizers in favor of peracetic acid (PAA), a combination of hydrogen peroxide and acetic acid.

OPTIONAL STEPS

1) PUSH-OUT: INCREASE PRODUCT RECOVERY AND IMPROVE CLEANING

Prior to the pre-rinse cycle, pushing out residual product in the process lines using a projectile-type product recovery system improves cleaning and can save valuable product from going down the drain.

2) ACID WASH: (130–150° F)

Many dairies use acid washes regularly to remove milk scale, also called “milk stone.” Acid is also excellent for brightening up discolored stainless steel by removing calcified mineral stains. This optional step would occur after the intermediate rinse and before final rinse.

3) AIR BLOW: REMOVE REMAINING MOISTURE

This step removes moisture remaining in the line after the final rinse. When performing this step, it's recommended you use an air blow check valve that is CIP'able. This eliminates the need to disassemble the valve to be cleaned manually.

