Brewery CIP Procedures Guideline

Initial Cleaning & Quality CIP Program

Cleaning & Passivation

Once your equipment is installed and ready, whether it is brand new or used and restored, you need to be sure to complete and aggressive initial cleaning & passivation of your stainless. This outline will get your equipment in a sanitary and operational state. The reason for this step is to insure the removal of solids, oils and other unwanted materials and contaminants that are deposited during the manufacturing, storage and transportation of your equipment and prepare it for daily operation.

Cleaning Chemicals, 3 are required

Alkali

Your alkali is for the removal of organic soils. Your general procedure is to remove contaminants and soils from largest to smallest and as your organic soils are number 1, this is where you will want to begin. Most chemicals include various corrosive caustics in the form of liquid or powder (soda) form, also they will be Chlorinated or non-Chlorinated. Chlorinated caustics will operate at lower temperatures, but are much more stressful to your stainless. To be most effective and efficient with your time and cleaning you want an alkali that is chelated and contains surfactants as well as some detergency.

Acid

Your acid should be a well-blended solution of Nitric and Phosphoric; this allows the removal of mineral soils as well as passivating your stainless.

Sanitizer & Final Rinse

Sanitizing is your final step and insures that no unwanted contaminants are introduced to your system and Bier/Beer. There are a variety of choices on the market today. Many effective "sanitizers" on the market are used by brewers, but not marketed from the supplier as such. Your goal is to make the vessel environment inhospitable to unwanted guests.

Side Note: With the use of these chemicals daily and dependent upon the volumes, your waste water may need to be addressed with the city/county and in your facility. These chemicals can cause substantial pH swings once it is sent to the drain. Conditioning tanks may be required before the release of your wastewater to the community wastewater system. The adjustment of your wastewater pH can be as easy as adding a small amount of caustic or acid directly to your conditioning tanks to raise or lower the pH to the desired range or your city/county requires.

Cleaning Outline

The following procedure is the recommended way to prepare and use your chemicals on newly installed stainless steel equipment. These procedures will insure your equipment is clean and ready to use. In some cases multiple cleaning rotations of this procedure are needed to be sure equipment is operable. This requires a visual inspection of the solution and equipment after every step to be sure all contaminants are being removed. The best way to maximize your cleaning and sanitation of equipment is to use

"**The 4 T's**"

- ✓ **Time**
- ✓ **Temperature**
- ✓ **Titration**
- ✓ **Turbulence**

If you are lacking in one area you have to make it up with the other three. Let's say you are lacking temperature slightly, you will need to extend your cleaning time, possibly add more cleaning solution (do not exceed manufacturer/supplier recommendations, more is not necessarily better) and create more turbulence in the vessel. Best practices are to use a Variable speed pumps (VFD), this will allow you to adjust your turbulence and effectiveness and range of cleaning through these steps. These steps are recommendations and slight modifications and rinses may be needed before and in between each step. Most vessels have multiple entry and exit points for various materials and gasses that are produced during the brewing process. The entry/exit points need to be CIP'd as well for varying amounts of time. We can provide recommendations for your specific equipment.

1. Begin your CIP with a **liquid or caustic soda**. Caustics are generally most effective between 145°-160°f. Mix strength-use manufacturer recommendations
    a. CIP for 45 minutes – Vessel
    b. CIP other entry/exit points – call for recommendation on your specific equipment
    c. Drain visually inspect and burst rinse with fresh water

2. Now begin your Acid cycle with a **Nitric/Phosphoric Acid**, Acids are generally most effective between 120°- 140°f. Mix strength-use manufacturer recommendations
    a. CIP for 30 Minutes
    b. CIP other entry/exit points
    c. Drain and visually inspect
    d. Rinse

3. Now **Sanitize/Final rinse** your vessel with your preferred sanitizer or rinse per supplier/manufacturer instructions on label. Mix strength-use manufacturer recommendations

We prefer to recommend **Low-Foam Chemicals.** When you have excessive foaming, the effectiveness of the chemicals and cleaning regiment is reduced.

New, Used and Reconditioned Equipment

Acid passivation: Passivating your new, used or reconditioned equipment is extremely important before it's placed in operation. The maintenance of stainless steel is critical to production. It supports the stainless coating that makes cleaning stainless easier, inhibits corrosion and prolongs the life of stainless steel.

1. Use the above cleaning guideline for the initial cleaning or two. Then complete step 1 with your preferred Alkali, rinse vessel and then continue with these steps.
2. For initial passivation
    a. Use Nitric/Phosphoric Acid cleaner at recommended strength
    b. CIP for 30-45 minutes at 120°-140°f.
    c. Open vessel to allow an air dry for 12-36 hours
    d. Rinse tank well, sanitize and place in operation

2. For subsequent re-passivation (best performed bi-monthly)
    a. Use Nitric/Phosphoric Acid at recommended strength
    b. CIP for 30-45 minutes at 120°-140°f
    c. Open vessel to allow air dry for 12-24 hours
    d. Rinse well and sanitize prior to use of vessel.

If proprietary CIP and cleaning Sop's are desired, you may contact us at Landlocked to discuss, design, and implement SOP's tailored to fit your facility perfectly.

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