

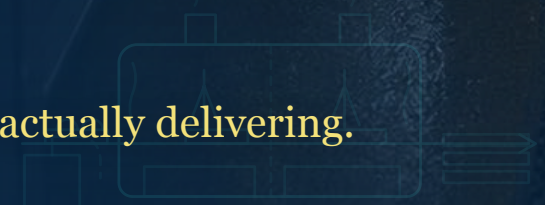


CI360™ · WW · 6 STAGES · ONE RACK CYCLE · 3 MACHINE PROGRAMS

Warewash programs often lose control through drift - a final-rinse temperature nobody has measured this month, a sanitizer pump that quietly lost calibration, a delime interval set by habit instead of water hardness.

Warewash

Start with the temperature the machine is actually delivering.





Inside the warewash program

One rack cycle from presoak to verified hygiene - organized by the job each product owns, the measurements the machine must hold, and the controls that catch drift before the next rack.

01	Program overview One rack cycle, six operating stages, and one defined job for every chemistry lane.	3	02	Presoak Release recurring protein soil before the rack without carrying foam into the tank.	5
03	Wash Choose one machine detergent, set its feed, and verify first-pass cleanliness.	8	04	Rinse & sanitize Build full sheeting and prove the thermal or chemical kill step at the rack.	11
05	Verify & maintain Read the exit rack, log four controls, and delime to measured water hardness.	14	06	Machine deployment Hold the six-stage logic across high-temp, low-temp, and bar-glass programs.	20
07	Control & standardization Commission set-points, track KPIs, and troubleshoot from the symptom.	23			

S1 Presoak Release protein before the rack	S2 Wash One detergent per machine	S3 Rinse Sheeting, not standing droplets
S4 Sanitize Thermal or verified chemistry	S5 Verify Read and log the exit rack	S6 Maintain Delime to measured hardness

One rack cycle, six stages - and every product has one defined job

Six stages. One rack cycle. Three machine programs.

CI360™ is a task-based program, not a product shelf. Warewash runs as a closed cycle: presoak, wash, rinse, sanitize, verify, maintain - and back to the next rack. Each stage has one job, and every product has one defined lane. The program fails when the lanes blur: two detergents in one machine, a hand-sink detergent poured into a machine tank, chemical sanitizer stacked on top of a machine that already sanitizes with heat, or a delime cycle that only happens when scale is visible on the arms.

Final-rinse temperature is the first control to verify because it decides the sanitizing lane. Detergent selection also follows machine type, soil, water, discharge requirements, and dispenser format; the delime interval follows measured hardness. Every decision has to be based on a measurement, not an assumption.

FOLLOW THE SIX-STAGE OPERATING SEQUENCE

S1	Presoak Break the soil before the rack	000–060°
S2	Wash One detergent per machine	060–120°
S3	Rinse Sheeting, not standing droplets	120–180°
S4	Sanitize Thermal, or verified ppm	180–240°
S5	Verify Read the rack, log the numbers	240–300°
S6	Maintain Delime on hardness, not on sight	300–360°

STAGE KEY SUPPORTING STAGES

DASHED OUTER ARC = THE RACK CYCLE REPEATING

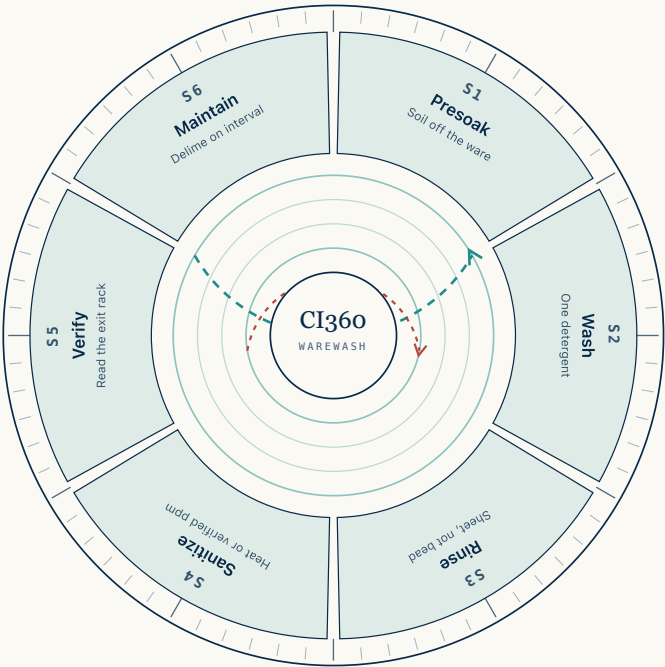
RED INNER ARC = THE REWASH LOOP THIS PROGRAM EXISTS TO ELIMINATE

FOOD SERVICE COMMERCIAL SANITATION

= CATALOGUE SECTION OF A LINKED PRODUCT

THE OPERATING ROUTE

1 Measure Final rinse temperature at the rack, before anything else	2 Assign One defined job for each product - keep the chemistry systems separate	3 Set Feed rates, dwell times, and the delime interval	4 Verify Temperature, ppm, sheeting, rewash rate - every shift
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FAILURE MODE 01

Temperature assumed, not measured

A machine rated for high-temp operation is not a machine holding 180 °F at the rack. Boosters drift, elements scale over, and nobody notices until an inspection does. Every other decision on the line is downstream of this number.

FAILURE MODE 02

Two detergents in one machine

Running liquid and granular together "to be safe" doubles alkalinity, etches glassware, and shows up downstream as a rinse problem. One detergent per machine, matched to the temperature and the water.

FAILURE MODE 03

Manual chemistry in machine dosing

Hand-sink detergents are high-suds by design. One pour into a machine tank foams the wash pump dry and ends the shift. The manual line runs beside the machine, never into it.

FAILURE MODE 04

Sanitizer ppm unverified

On low-temp and bar-glass machines the sanitizer is the kill step, and it is a health-code number rather than a preference. Pump calibration drifts, eductors dilute, drums run empty, and test strips expire. Verify with fresh strips, every shift.

FAILURE MODE 05

Deliming by sight

By the time scale is visible on the arms it is already restricting flow, choking jets, and insulating elements. The interval is set by water hardness, and it is the first thing to check when film and spotting appear.

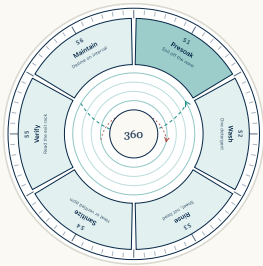
THE DEFINED-JOB RULE

SIX STAGES, ONE SYSTEM

- Presoak releases protein before the rack, so the machine is not over-dosed to compensate.
- One machine detergent carries the wash - liquid, granular, or non-chlorinated glass.
- Rinse additive controls hard-water residue and produces sheeting, not droplets.
- The sanitize step is either heat or verified chemistry - never both on the same rack.
- Verification is a stage with its own outputs: temperature, ppm, sheeting, rewash rate.
- Deliming runs off the daily line, on an interval set by water hardness.

PLANNING MISTAKES THIS PROGRAM AVOIDS

- Raising detergent feed to chase a problem that belongs in the presoak sink.
- Adding chemical sanitizer to a high-temp machine that is already sanitizing thermally.
- Running chlorine chemistry through a bar glass program and calling the result a rinse problem.
- Changing products before verifying temperature, feed rate, and delime interval.
- Treating the three-compartment sink and the machine as one chemistry system.



SECTION 02 · STAGE S1 · PRESOAK

Presoak

Protein released before the rack, so the wash stage is not asked to solve it alone.

RESULT

Fewer rewashes, less soil into the tank, no over-dosing to compensate

“The machine should not be asked to solve a problem that belongs in the presoak sink. Raising detergent feed to chase protein soil etches glass and films ware.”

Presoak is a staged step, not a standing bucket. It earns its place where protein soil recurs – egg, dairy, meat, and baked-on organic residue on flatware. Enzymes need both temperature and time: hold the bath between 37-50 °C, because colder water slows the protease and hotter water denatures it. Then rinse the ware before racking, or presoak residue carries into the wash tank and foams the pump.

THE PRESOAK LOGIC

1 Scrape first Gross soil leaves at the table, not in the bath	2 Dose to label 1:20 with the 20X concentrate · not by eye	3 Hold the band 37-50 °C · too hot kills the enzyme	4 Dwell 10 minutes minimum · time does the work	5 Rinse before racking Presoak residue foams the wash tank
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THE CHEMISTRY CABINET · COLOUR DOT = THE CATALOGUE SECTION EACH PRODUCT LIVES IN · PRODUCT NAMES LINK TO THE CURRENT CATALOGUE PAGE

PROTEIN FLATWARE PRESOAK

20X protease concentrate for egg, dairy, meat, and baked-on protein. Safe on silver and stainless.



CI WareWash
Enzyme PreSoak
● Enzyme presoak

SOIL-SPECIFIC PRESOAK LANES

Tannin, silver, plastic staining, and mixed loads are separate problems with separate chemistry - specify the lane with your CI representative.

Tannin on china and melamine - chlorinated stain presoak for tea and coffee cup staining.

Silver flatware - non-chlorinated presoak where tarnish risk rules out chlorine chemistry.

Plastic and melamine staining - oxidative lift for tomato, curry, and turmeric.

General mixed loads - where no enzyme, silver-safe, or stain-lift chemistry is required.

SHEET	STAGE	STANDARD	PRODUCTS
WW-01	S1 · Presoak	Protein released · temperature held · rinsed before racking	1

PRESOAK

1

Soiled ware · scrape first

2

SCRAP

3

37-50 °C
hold the band

1:20 · enzyme presoak

4

10 MIN

5

Rinse before racking

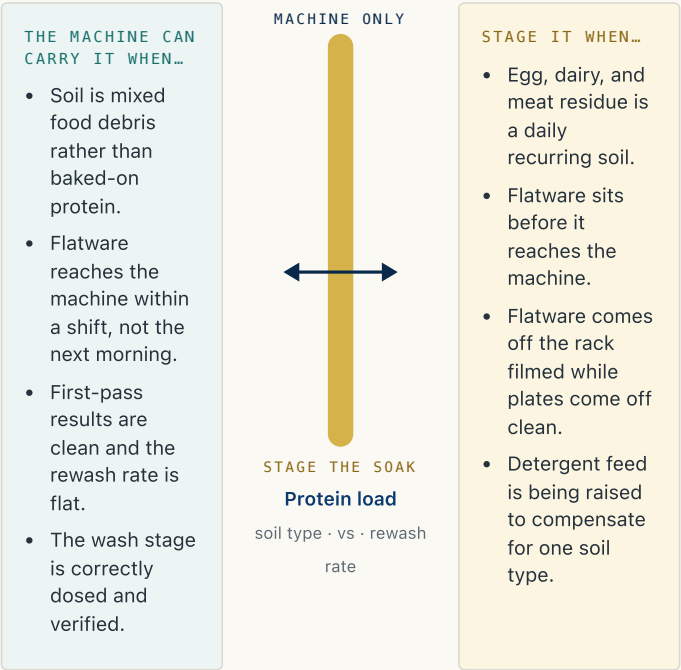
Racked flatware

SCRAP TABLE · UNDERCOUNTER

TO THE RACK

TASK / CONDITION · BEST-FIT PRODUCTS	WHY IT BELONGS · OPERATOR NOTE
1 Scrape and scrap before the bath	Gross soil belongs in the scrap opening, not in presoak chemistry. A presoak bath loaded with food debris stops working within an hour. Scraping is the cheapest step in the dishroom and the one most often skipped when the line backs up.
2 Protein soil on flatware ● CI WareWash Enzyme PreSoak	20X concentrated protease presoak for egg, dairy, meat, and baked-on protein; safe on silver and stainless steel. Stage it where protein soil recurs, not everywhere by default. Where the soil does not justify it, the stage is skipped and the machine carries the load.
3 Bath temperature	37-50 °C is the working band for the protease. Below the band the enzyme is slow; above it the enzyme is destroyed and you are soaking in warm water. Put a thermometer in the bath and treat the band as a set-point, not a preference.
4 Dwell time	Ten minutes minimum. Time is what the enzyme uses. Shortening dwell to keep the line moving is what pushes protein soil into the wash tank. If the bath cannot hold ten minutes, the bath is undersized for the volume.
5 Rinse before racking	Presoaked ware carries presoak chemistry into the machine. This is the single most common cause of foam in a wash tank that is otherwise correctly dosed. Rinse the flatware, then rack it.

Presoak earns its place - or it does not run.



SIGNS THIS STAGE IS MISSING

Flatware returns for a rewash while plates and glassware come off clean. Protein film appears on tines and spoon bowls. Detergent consumption is climbing with no change in cover count. Operators describe the detergent as "not working like it used to."

Scrape → soak → rinse → rack.

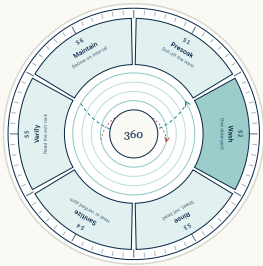
The presoak stage exists to change what enters the wash tank. Every gram of protein released in the sink is soil the machine does not have to carry, alkalinity it does not have to spend, and water it does not have to change early. Where the stage is running correctly, the wash tank stays cleaner for longer and the rewash rate drops without a single change to the detergent.

DO NOT RAISE DETERGENT TO CHASE PROTEIN

Over-dosing machine detergent to solve a presoak problem etches glassware, films ware, and raises chemical cost on every rack in the building to fix a soil that appears on one. Fix the stage that owns the problem.

SIGNS THIS STAGE IS MIS-RUN

Foam in the wash tank shortly after a presoak batch is racked - ware was not rinsed. A bath that is hot to the touch - the protease is denatured and the soak is doing nothing. A bath left standing all shift, loaded with debris, doing less than plain water.



SECTION 03 · STAGE S2 · WASH

Wash

One detergent per machine, matched to the final-rinse temperature and the water it runs on.

RESULT

First-pass cleanliness, controlled foam, no etched glass

“One detergent per machine. Two is not insurance - it is double alkalinity, etched glassware, and a rinse problem you will spend a week chasing.”

The wash stage is where soil is removed, and it is the only stage where the choice of product is genuinely a choice. Liquid alkaline covers most high-temp and many low-temp machines and holds performance in hard water. Phosphate-free granular is the lane where discharge is restricted or a dry feed suits the site. Non-chlorinated glass chemistry is a separate lane entirely, because chlorine is what puts odour and film on beverage glass.

Set the feed at 2-4 mL/L through the dispenser, then verify low foam and first-pass cleanliness before touching the controller again. If ware is coming out clean but not clear, the answer is almost always rinse aid or scale - not more detergent.

THE WASH LOGIC

1 Confirm the machine High-temp, low-temp, or bar glass - measured	2 Set the feed 2-4 mL/L by dispenser · not by eye	3 Check the foam Low foam is a specification, not a preference	4 Read the first pass Clean on the first rack, or the dose is wrong	5 Adjust to soil and hardness Within spec · then leave it alone
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THE CHEMISTRY CABINET

THE WORKHORSE - LIQUID ALKALINE

High-alkaline liquid with built-in sequestrants. Runs high-temp and low-temp machines, and holds up where the water is hard.



CI Machine Dishwash L-Type

● Liquid machine detergent

PHOSPHATE-FREE GRANULAR

Active-oxygen granular with built-in water softeners and protein removers. The lane for discharge-restricted or dry-feed sites.



CI Machine Dishwash P-Type

● Granular · active oxygen

BAR AND GLASS - NON-CHLORINATED

Glass clarity is the whole job. Chlorine is what drives odour, film, and flat beer heads.



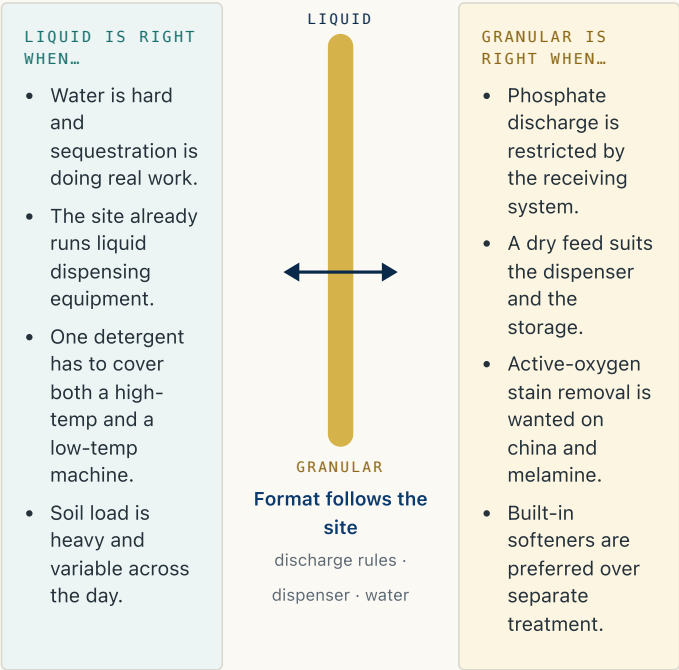
CI Bar Glass Cleaner

● Non-chlorinated low-foam

SHEET	STAGE	STANDARD	PRODUCTS
WW-02	S2 · Wash	One detergent · low foam · clean on the first pass	3

TASK / CONDITION · BEST-FIT PRODUCTS	WHY IT BELONGS · OPERATOR NOTE
1 Scrap screens and wash arms	Chemistry cannot reach ware that the spray pattern is not hitting. Clogged jets and loaded screens read exactly like an under-dosed detergent. Clear them before you touch the feed rate - it is a two-minute check that resolves a large share of "soil remaining" calls.
2 High-volume machine wash · hard water ● CI Machine Dishwash L-Type	Concentrated high-alkaline liquid with sequestering agents for grease, baked-on protein, and hard-water minerals; runs across high- and low-temp systems. This is the default lane. Hard water and heavy food soil are the conditions it was built for, and one liquid covering both machine types keeps the dishroom on a single SKU.
3 Phosphate-restricted or dry-feed sites ● CI Machine Dishwash P-Type	Phosphate-free granular with an active-oxygen system, built-in water softeners, protein removers, and free-rinsing wetting agents. Choose it for the discharge requirement or the dispenser format, not for performance ranking. It is a parallel lane to the liquid, not a step above or below it.
4 Bar, glass, and bottle washers ● CI Bar Glass Cleaner	Non-chlorinated, low-foaming liquid for automatic glass and bottle washers - cuts beverage residue, lipstick, and protein film without chlorine. Do not substitute a dish detergent here. Chlorine residue transfers taste and smell to the next pour and kills head retention on beer glass.
5 Detergent feed rate ● CI Machine Dishwash L-Type ● CI Bar Glass Cleaner	2-4 mL/L through the dispenser, adjusted to soil load and water hardness. Set it, verify it, and log it. A feed rate adjusted by eye every time someone is unhappy with a rack is the fastest route to both etched glass and unexplained chemical spend.
6 Foam in the wash tank	Machine detergents are low-foam by specification. Foam means either manual chemistry has entered the tank or presoaked ware was racked unrinsed. Drain, refill, and find the source - do not dose a defoamer into a warewash tank as a routine fix.

Liquid or granular is a site decision, not a performance one.

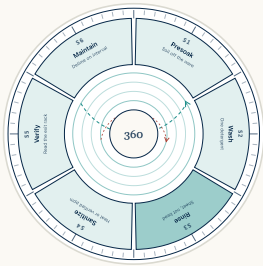


Clean, but not clear, is a rinse problem.

The most common misread in a dishroom is treating a clarity problem as a detergent problem. Ware that comes off the rack clean but spotted, filmed, or hazy is telling you about hard-water residue, rinse-aid feed, or scale - all downstream of the wash stage. Raising detergent in response makes the glass worse and the invoice larger.

ONE DETERGENT PER MACHINE

Running a liquid and a granular together doubles alkalinity in the tank, etches glassware permanently, and produces a film that no rinse additive can correct. If a second detergent is on the shelf for a second machine, label the dispensers and keep them apart.



SECTION 04 · STAGES S3-S4 · RINSE & SANITIZE

Rinse & Sanitize

Sheeting rather than droplets - and a kill step you can put a number on.

RESULT

Spot-free ware and a sanitize step that can be proven at the rack

“Sheeting is not cosmetic. Water that beads is water still carrying hardness onto the ware - and it will dry there.”

The final rinse does two jobs on the same pass. The rinse additive neutralizes hard-water residue and drops surface tension so water leaves the ware as one unbroken film. The sanitize step is either heat or chemistry, decided entirely by what the machine actually delivers: thermal on a machine holding 180-195 °F at the rack, verified iodine or chlorine on a low-temp machine, and iodine at 12 ppm on bar glass.

Where a machine has two rinse pumps, keep rinse aid and sanitizer in separate lanes. Where it has one, use a combined feed only if both the controller and the product are designed for it. And never dilute iodine with hot water at the eductor - it strips the residual you are trying to verify.

THE RINSE AND SANITIZE LOGIC

1 Measure at the rack The gauge is not the rack · use a strip or probe	2 Set rinse to sheeting One unbroken film · 8-15 s to dry	3 Decide the kill step Heat above 180 °F · chemistry below it	4 Verify ppm Fresh strips · current lot · every shift	5 Log it An unlogged reading is not a verification
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THE CHEMISTRY CABINET

FINAL RINSE - SHEETING AND SCALE CONTROL

Non-foaming rinse additive with balanced wetting agents and a mild acid that neutralizes hard-water residue on ware and machine internals.



CI Sprinse Rinse Additive

● Rinse additive

CHEMICAL SANITIZE - IODINE

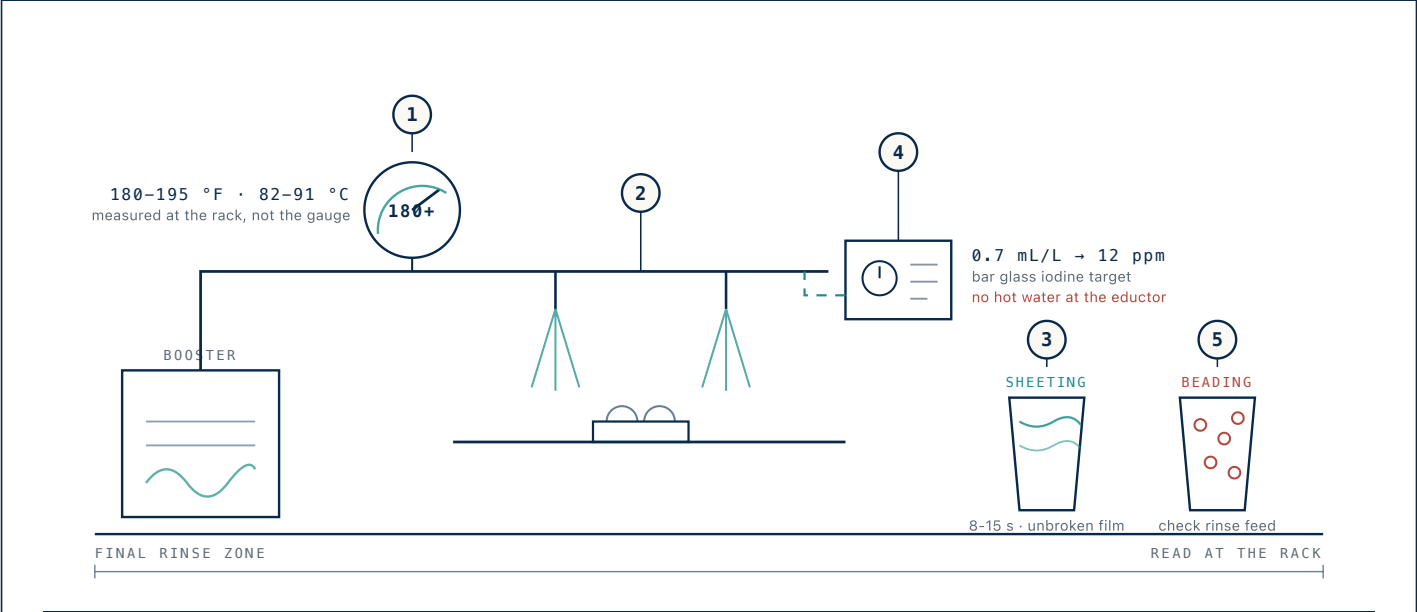
Low-foaming iodine sanitizer and rinse aid for bar glass washers and low-temp machines. 16% iodine complex with 8.8% lactic acid.



CI Sanitrol

● Iodine sanitizer

SHEET WW-03	STAGE S3-S4 · Rinse & sanitize	STANDARD Full sheeting · verified kill step · logged every shift	PRODUCTS 3
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TASK / CONDITION · BEST-FIT PRODUCTS	WHY IT BELONGS · OPERATOR NOTE
1 Final-rinse temperature	180–195 °F (82–91 °C) on a high-temp machine, measured at the rack. Heat sanitizing only happens at temperature. A clean-looking rack is not proof, and the panel gauge reads the manifold rather than the ware. Use a dishwasher-safe thermometer or thermal strip.
2 Rinse additive feed ● CI Sprinse Rinse Additive	Non-foaming rinse additive with wetting agents and mild acid for rapid sheeting and hard-water residue control on ware and machine internals. Water should leave the ware as one unbroken film and dry in 8–15 seconds. Standing droplets mean the rinse feed needs adjusting – before anyone touches the detergent.
3 Thermal sanitizing · high-temp machines	The heat is the kill step. No chemical sanitizer belongs in the cycle. Adding sanitizer on top of a machine that is already sanitizing thermally buys nothing, costs money, and can taint glassware. If the machine cannot hold temperature, stop service and follow the approved site corrective SOP and equipment requirements – never add chemical sanitizer to an unapproved cycle.
4 Chemical sanitizing · low-temp machines ● CI Sanitrol	Verified iodine at the final rinse where the machine runs around 160 °F (71 °C). This is the kill step and a health-code number, not a preference. Confirm with fresh strips from the current lot at least once per shift, and log the reading.
5 Bar glass · iodine at 12 ppm ● CI Sanitrol ● CI Bar Glass Cleaner	0.7 mL/L to a 12 ppm iodine target in the final rinse, paired with non-chlorinated wash chemistry. Do not dilute iodine with hot water at the eductor. Hot-water dilution is the most common reason a correctly set pump still reads short on the strip.
6 Odour or aftertaste on beverage glass ● CI Bar Glass Cleaner ● CI Sanitrol	Chlorine contact anywhere in the glass program transfers taste and smell to the next pour. Move the whole program to non-chlorinated wash chemistry and iodine, then verify ppm and eliminate hot-water dilution. Flat beer heads and “wine tastes off” are the same fault reported two ways.

Measured performance and approved equipment requirements decide the kill step, not site preference.

THERMAL, WHEN...

- The final rinse holds 180-195 °F measured at the rack.
- The booster recovers between racks at full production rate.
- Descaling is on interval and elements are clear.
- Temperature is logged, not assumed.

THERMAL



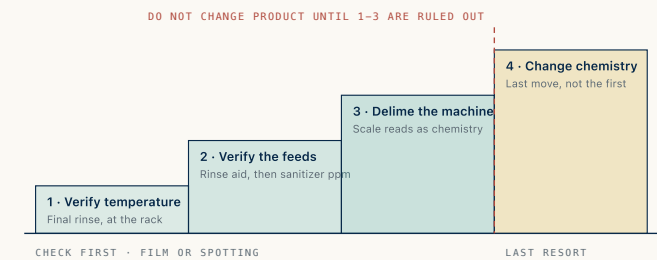
CHEMICAL

Kill step
measured °F · vs ·
verified ppm

CHEMICAL, WHEN...

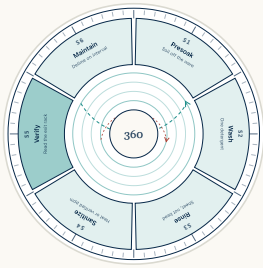
- The machine runs low-temp at around 160 °F.
- It is a bar or bottle glass washer at around 140 °F.
- The booster cannot hold temperature at production rate.
- Local requirement specifies a chemical residual.

Check first · film or spotting.



TWO PUMPS, TWO LANES

Where the machine has separate rinse and sanitizer pumps, keep the products separate. Where there is a single pump, a combined feed is only acceptable if both the controller and the product are designed for it. Improvising here produces a rinse that under-delivers on both jobs.



SECTION 05 · STAGES S5-S6 · VERIFY & MAINTAIN

Verify & Maintain

The exit read, the shift log, the delime interval - and the manual line that runs beside the machine.

RESULT

Drift caught at the rack instead of at the inspection

“Most warewash failures are drift, not chemistry. Verify temperature, feed, and delime interval before you change a single product.”

Verification is a stage, not an afterthought. Four readings - final-rinse temperature, sanitizer ppm, sheeting behaviour, and rewash rate - catch nearly all warewash drift before it reaches a customer or an inspector. None of them takes more than a minute, and all four belong on a shift log rather than in someone’s memory.

Deliming is the maintenance stage that keeps the rest honest. Missed delime cycles are the most common cause of film, cloudy glass, weak spray pattern, and a booster that no longer reaches temperature. Set the interval by measured water hardness and run it off the daily line - never during service, and never in the same cycle as detergent or sanitizer. The manual three-compartment line runs beside all of this on its own chemistry, and that chemistry never enters machine dosing.

THE VERIFICATION LOGIC

1 Read the exit rack Dry, no spots, no film, in 8-15 seconds	2 Log the numbers °F and ppm, every shift, on paper or in the system	3 Track the rewash rate The one number that summarises the whole program	4 Delime on interval Set by water hardness, not by what you can see	5 Keep the lanes apart Manual sink chemistry never enters the machine
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THE CHEMISTRY CABINET

SCALE CONTROL · SCHEDULED PM

Non-foaming acid descaler for calcium, lime, and mineral scale in dish machines, glass washers, and water-fed equipment.

THE MANUAL LINE - POT, PAN, AND THREE-SINK

High-suds by design and correct for hand work. None of these products ever goes into a machine tank.

SURFACES OUTSIDE THE MACHINE

Quat disinfectant for food-contact surfaces and general kitchen sanitizing. Not a machine rinse sanitizer.



CI ZIP Pot & Pan DishWash
● Pot & pan



CI Platinum Dish Detergent
● 2X concentrate



CI Scalzoff Acid Descaler
● Acid descaler



CI Soft & Gentle
● Food-plant duty



CI OstroSan Quat
● Quat · DIN 02465116

SHEET	STAGE	STANDARD	PRODUCTS
WW-04	S5-S6 · Verify & maintain	Numbers logged · scale controlled · lanes kept apart	5

1. EXIT · VERIFICATION POINT

2. SHIFT LOG

3. DELIME CYCLE

4. WASH

5. RINSE · SAN

Manual line · separate chemistry
never dosed into the machine

interval set by water hardness

OFF THE MACHINE LINE

TASK / CONDITION · BEST-FIT PRODUCTS	WHY IT BELONGS · OPERATOR NOTE
1 The exit read	Dry ware with no standing droplets in 8-15 seconds is the program working. Spots, film, or wet stacks each point back to a specific stage. Read the rack every shift and treat what you see as a diagnostic, not a complaint.
2 The shift log	Final-rinse temperature, sanitizer ppm, sheeting, and rewash rate. A program that lives in one supervisor's head resets every time that person moves on. Four numbers on a wall sheet survive staff turnover; a verbal standard does not.
3 Scale control and deliming ● CI Scalzoff Acid Descaler	Non-foaming acid descaler that dissolves calcium, lime, and magnesium scale in dish machines, glass washers, and other water-fed equipment. Set the interval by measured hardness. Run it off the daily line, never during service, and never in the same cycle as detergent or sanitizer.
4 Pot, pan, and three-sink work ● CI ZIP Pot & Pan DishWash ● CI Platinum Dish Detergent ● CI Soft & Gentle	High-suds lemon liquid for baked-on cookware; a 2X neutral-pH concentrate for high-volume sinks; a food-plant manual detergent effective across all water conditions. Pick one as the site standard for the sink and keep it there. These are high-suds by design – one pour into a machine tank foams the wash pump dry.
5 Food-contact surfaces outside the machine ● CI OstroSan Quat	Quaternary ammonium disinfectant and deodorizer for food-contact surfaces and general kitchen sanitizing, DIN 02465116. Surface sanitizing and machine rinse sanitizing are separate systems with separate products. Do not substitute one for the other in either direction.
6 Rewash rate	Racks that need a second pass, tracked as a number. Rewash rate is the single figure that summarises presoak, wash, rinse, and sanitize together. Any upward movement is a signal to check the four readings before anyone reaches for a different product.

The delime interval is set by the water, not the calendar.

VERIFY / MAINTAIN

A LONGER INTERVAL IS RIGHT WHEN...

- Incoming water is soft or softened at the building.
- Rinse additive feed is verified and sheeting is holding.
- Spray arms and jets are clear on inspection.
- Booster recovery is holding at full production rate.

SOFT WATER



HARD WATER

Delime interval
measured hardness -
not habit

A SHORTER INTERVAL IS RIGHT WHEN...

- Incoming water is hard and untreated.
- Film returns within days of a delime cycle.
- Spray pattern weakens between scheduled cycles.
- The booster is slower to recover than it was.

KEEP THE LANES SEPARATE

Machine detergent, manual sink detergent, machine rinse sanitizer, and surface disinfectant are four systems, not four options. Every warewash program that collapses does so by letting one of them wander into another's job.

Read → log → correct → delime.

Verification exists so that corrective action is aimed at the right stage. A dishroom that logs four numbers can tell the difference between an under-dosed tank, a drifting sanitizer pump, a rinse feed that needs resetting after a delime, and a machine that simply needs descaling. A dishroom that logs nothing can only change products and hope.

RESET THE RINSE FEED AFTER EVERY DELIME

Descaling changes the surface condition of the machine and, on many systems, the effective rinse feed rate. Spotting that appears immediately after a delime cycle is almost always a rinse-aid feed that needs re-setting - not evidence that the descale was wrong.

DESCALE IS NOT A SERVICE-HOURS JOB

Deliming never runs during service and never shares a cycle with detergent or sanitizer. Schedule it, log it, and tie the interval back to the actual water - not to the last time somebody noticed scale on the arms.



MEASURED PERFORMANCE / VERIFIED RACK

Temperature measured. The rack proves the result.

Read at the ware

The panel gauge is not the rack. Use an approved thermometer, thermal strip, or current sanitizer test strip at the verification point required by the site SOP.

Log the four controls

Final-rinse temperature, sanitizer ppm where required, sheeting and dry time, and rewash rate turn drift into a visible corrective action.



REFERENCE / PR-01	Product operating data	MACHINE-CYCLE CHEMISTRY
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Use these source-grounded operating notes to identify each product's primary lane. Confirm every numeric setting against the current label, SDS, equipment requirements, and local health authority before commissioning.

01 / S1 / PROTEIN FLATWARE PRESOAK CI WareWash Enzyme PreSoak 20X protease concentrate for egg, dairy, meat, and baked-on protein; safe on silver and stainless. CONTROL POINT 1:20 dilution; 37-50 °C; at least 10 minutes; rinse before racking.	02 / S2 / LIQUID MACHINE WASH CI Machine Dishwash L-Type High-alkaline liquid with sequestrants for heavy food soil and hard-water minerals across high- and low-temperature machines. CONTROL POINT 2-4 mL/L through the dispenser; verify low foam and first-pass cleanliness.
03 / S2 / PHOSPHATE-FREE DRY FEED CI Machine Dishwash P-Type Active-oxygen granular with built-in water softeners, protein removers, and free-rinsing wetting agents. CONTROL POINT Use where phosphate discharge or dry-feed format drives the choice; follow the current label and dispenser setting.	04 / S2 / BAR, GLASS, AND BOTTLE WASH CI Bar Glass Cleaner Non-chlorinated, low-foaming liquid for beverage residue, lipstick, and protein film without chlorine contact. CONTROL POINT 2-4 mL/L through the dispenser; pair with the approved iodine rinse lane.
05 / S3 / FINAL-RINSE SHEETING CI Sprinse Rinse Additive Non-foaming wetting system with mild acid for hard-water residue control on ware and machine internals. CONTROL POINT Set for one unbroken film and an 8-15 second dry time; adjust before changing detergent.	06 / S4 / CHEMICAL SANITIZING CI Sanitrol Low-foaming iodine sanitizer and rinse aid for approved low-temperature and bar-glass systems; 16% iodine complex with 8.8% lactic acid. CONTROL POINT For bar glass: 0.7 mL/L to a 12 ppm target; verify with current test strips every shift.

PRODUCT NAMES LINK TO CURRENT PRODUCT INFORMATION IN THE DIGITAL PDF

REFERENCE / PR-02	Product operating data / continued	MANUAL, MAINTENANCE, AND SURFACE LANES
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Keep manual sink chemistry, acid maintenance chemistry, and surface disinfectant in their defined lanes. These products are not interchangeable with machine wash or final-rinse chemistry.

07 / S6 / SCHEDULED SCALE CONTROL

CI Scalzoff Acid Descaler

Non-foaming acid descaler for calcium, lime, and magnesium scale in dish machines, glass washers, and water-fed equipment.

CONTROL POINT

Set the interval by measured hardness; run off-line; never combine with alkaline or chlorinated chemistry.

08 / MANUAL LINE / COOKWARE

CI ZIP Pot & Pan DishWash

High-suds lemon liquid for baked-on cookware and hand-wash work.

CONTROL POINT

Standardize at the manual sink and keep it out of every machine tank.

09 / MANUAL LINE / HIGH-VOLUME SINK

CI Platinum Dish Detergent

2X neutral-pH concentrate for high-volume manual dishwashing.

CONTROL POINT

Use only in the designated manual line; never substitute it for low-foam machine detergent.

10 / MANUAL LINE / FOOD-PLANT DUTY

CI Soft & Gentle

Manual detergent designed to remain effective across water conditions.

CONTROL POINT

Assign it to the site manual-wash standard and keep it out of machine dosing.

11 / SURFACES OUTSIDE THE MACHINE

CI OstroSan Quat

Quaternary ammonium disinfectant and deodorizer for food-contact surfaces and general kitchen sanitizing; DIN 02465116.

CONTROL POINT

Surface and machine-rinse sanitizing are separate systems; never substitute one product for the other.

CRITICAL SEPARATION RULE

Never mix acid descaler with chlorinated or alkaline chemistry. Run deliming off-line and never in the same cycle as detergent or sanitizer. Manual detergents never enter machine tanks, and surface disinfectant never substitutes for a machine-rinse sanitizer.

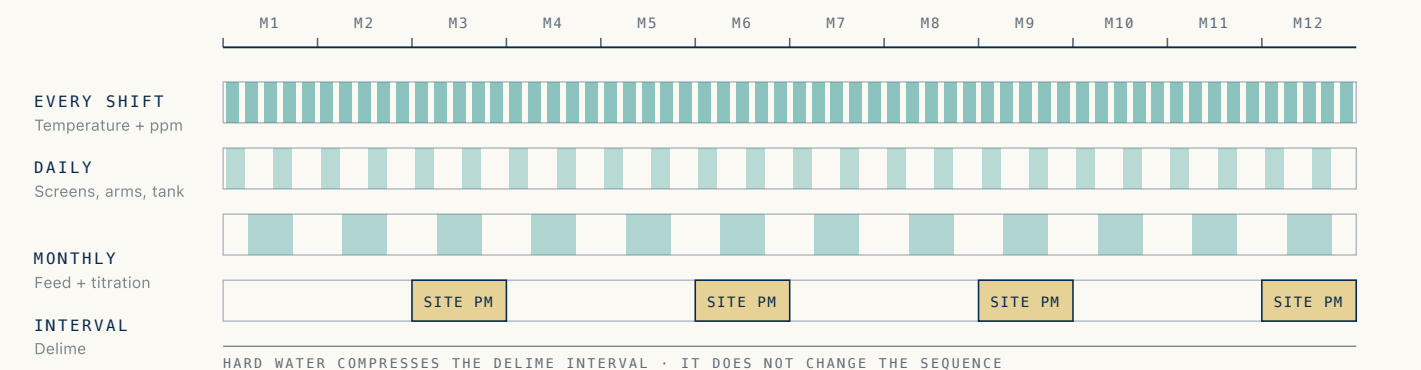
One system, three machine programs - the stage logic stays fixed while chemistry and set-points vary

The stage sequence stays fixed. Temperature decides the sanitize lane and the chemistry that supports it.

CI360 warewash scales from a single undercounter glass washer to a rack conveyor in an institutional kitchen on the same six stages. Machine type and measured final-rinse temperature determine the approved sanitizing lane; wash and rinse chemistry and set-points also adapt to the equipment, water, and ware. Thermal sanitizing applies above 180 °F, verified chemistry applies on approved low-temperature systems, and bar glass uses iodine at a controlled 12 ppm.

High-Temperature Machine Rack conveyor or door type · ≥ 180 °F / 82 °C final rinse WASH Machine Dishwash L-Type at 2-4 mL/L, or P-Type where a phosphate-free granular suits the site. RINSE Sprinsc Rinse Additive, set to full sheeting with no droplets or breaks on the ware. SANITIZE Thermal. No chemical sanitizer in the cycle where the final rinse genuinely holds temperature. PM Scalzoﬀ on a delime interval set to local water hardness.	Low-Temperature Machine Chemical sanitizing · around 160 °F / 71 °C final rinse WASH Machine Dishwash L-Type where approved for the machine and the water. RINSE Sprinsc Rinse Additive for sheeting and hard-water residue control. SANITIZE Sanitrol iodine at the final rinse, verified with fresh test strips every shift. This is the kill step. GUARDRAIL Two rinse pumps: keep rinse aid and sanitizer separate. One pump: combined feed only where the controller and product allow it.	Bar Glass Washer Non-chlorinated wash · around 140 °F / 60 °C · iodine final rinse WASH Bar Glass Cleaner at 2-4 mL/L - non-chlorinated, for film-free glass with no odour transfer. RINSE Sprinsc Rinse Additive for clarity and sheeting; head retention on beer glass depends on it. SANITIZE Sanitrol at 0.7 mL/L to a 12 ppm iodine target. Do not dilute with hot water at the eductor. AVOID Chlorine anywhere in the glass program. It is what drives odour, film, and spotting on glassware.
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PLANNED CONTROL CYCLE • TWELVE-MONTH EXAMPLE • SET SITE PM TO MEASURED HARDNESS



CONDITION IN THE DISHROOM What you are actually looking at	STAGE Where it belongs in the cycle	FIRST MOVE Do this before anything else	PRODUCTS	ESCALATE ONLY IF...
S1 Protein film on flatware	Presoak	Stage an enzyme presoak before the rack.	● CI WareWash Enzyme PreSoak	Film persists after a correct soak - check dwell and bath temperature.
S2 Food soil remaining after the cycle	Wash	Clear screens and arms, then confirm feed within spec.	● CI Machine Dishwash L-Type ● CI WareWash Enzyme PreSoak	Soil remains at correct feed - check mechanical action and rack loading.
S2 Phosphate discharge restricted	Wash	Move to the phosphate-free granular lane.	● CI Machine Dishwash P-Type	Spotting appears after the change - reset rinse feed for the new chemistry.
S2 Cloudy or etched glassware	Wash	Reduce concentration or temperature before changing product.	● CI Bar Glass Cleaner ● CI Sprinse Rinse Additive	Etching is permanent - confirm no second detergent is in the tank.
S3 White film or spotting	Rinse	Raise rinse additive feed, then check the delime interval.	● CI Sprinse Rinse Additive ● CI Scalzoff Acid Descaler	Film returns within days - the water is harder than the interval assumes.
S3 Wet ware, slow drying	Rinse	Reset rinse feed to full sheeting.	● CI Sprinse Rinse Additive	Sheeting will not hold - verify final-rinse temperature and flow.

CONDITION IN THE DISHROOM What you are actually looking at	STAGE Where it belongs in the cycle	FIRST MOVE Do this before anything else	PRODUCTS	ESCALATE ONLY IF...
S4 Sanitizer ppm reads low	Sanitize	Check drum level, pump calibration, eductor dilution, and strip freshness.	● CI Sanitrol	ppm still short after calibration - confirm no hot-water dilution at the eductor.
S4 Odour or aftertaste on beer and wine glass	Sanitize	Move the whole glass program to non-chlorinated wash and iodine.	● CI Bar Glass Cleaner ● CI Sanitrol	Odour persists - audit every product touching the glass line.
S5 Foam in the wash tank	Verify	Confirm machine detergent only; rinse presoaked ware before racking.	● CI Machine Dishwash L-Type ● CI WareWash Enzyme PreSoak	Foam persists after drain and refill - trace the manual chemistry source.
S5 Rewash rate climbing	Verify	Read the four numbers before changing any product.		All four read in band - look at rack loading, scraping, and machine mechanics.
S6 Weak spray pattern or slow booster recovery	Maintain	Run a delime cycle and shorten the interval.	● CI Scalzoff Acid Descaler	Recovery does not improve - escalate to equipment service.
S6 Manual sink work	Maintain	Standardize one manual detergent for the sink line.	● CI ZIP Pot & Pan DishWash ● CI Platinum Dish Detergent ● CI Soft & Gentle	Never dosed into a machine tank, under any circumstance.
RULE OF THUMB	If the answer to a warewash problem is “change the detergent,” check temperature, rinse feed, and the delime interval first. Most sites that are unhappy with their chemistry are running correct chemistry out of calibration.			

□ Shift-frequency lane - verified every operating shift □ Escalation column - conditions that change the plan

Set it right once, then hold the numbers

Commissioning turns the stage architecture into set-points any operator can hold.

Commission the machine with verified sanitizer ppm, detergent feed, rinse performance, and PM intervals, then document the set-points so results do not depend on who is on shift. A warewash program that lives in one supervisor’s head resets every time that person moves on.

COMMISSIONING CHECKLIST

1

Confirm machine type and rinse logic
Identify high-temp or low-temp operation and confirm one-pump versus two-pump rinse logic before any chemistry is connected. This decides the sanitize lane and the feed architecture.

2

Set the detergent feed
Start at 2–4 mL/L through the dispenser, then verify low foam and first-pass cleanliness before adjusting the controller. Record the setting.

3

Dial in the rinse additive
Set to full sheeting. Ware should exit with no standing droplets and no breaks in the film, drying in 8–15 seconds.

4

Verify the sanitizer
Confirm iodine or chlorine ppm with current test strips on low-temp and bar-glass systems. On bar glass, 0.7 mL/L to a 12 ppm target, with no hot-water dilution at the eductor.

5

Stage the presoaks properly
Place the presoak at the scrape station with visible dilution, temperature band, and dwell-time instructions. Staging without instructions is not staging.

6

Schedule the delime interval
Set a recurring descale cycle based on measured local hardness rather than guesswork, and put it in the work-order system so it survives staff changes.

KPI DASHBOARD • WHAT TO MEASURE

PPM

Sanitizer ppm
Iodine or chlorine reading at the final rinse, logged at least once per shift on low-temp and bar-glass machines.

°F

Final rinse temperature
High-temp 180–195 °F, low-temp around 160 °F, bar glass around 140 °F – read at the rack.

RA

Rinse-aid feed rate
Confirm full sheeting. Adjust immediately if spotting or breaks in the film appear, and always after a delime cycle.

DF

Detergent feed
Conductivity control where available, timed feed where it is not. Log the set-point so drift is visible.

RW

Rewash rate
Racks needing a second pass. This is the number that summarises the whole program – investigate any upward movement.

PM

Delime frequency
Log every delime cycle and tie the interval back to measured water hardness rather than to what is visible on the arms.

WHAT THE SITE REPORTS	FIRST MOVE	PRODUCTS	WHY
APPEARANCE			
<i>“There is white film on glasses and plates.”</i>	Raise rinse feed, then delime.	● CI Sprinse Rinse Additive ● CI Scalzoff Acid Descaler	Film is hard-water residue. Rinse-aid acid strength for the local hardness and a missed delime interval cover most cases before chemistry changes.
<i>“We delimed and it still spots.”</i>	Re-set the rinse feed after the delime.	● CI Sprinse Rinse Additive	Descaling changes the machine surface and often the effective feed rate. Spotting straight after a delime is a feed problem, not a failed descale.
<i>“The glassware is cloudy.”</i>	Reduce concentration or temperature; move to the glass lane.	● CI Bar Glass Cleaner ● CI Sprinse Rinse Additive	Cloudy glass comes from chlorine contact, etching, over-concentration, or excessive temperature. Etching does not reverse - catch it early.
SOIL & SANITIZING			
<i>“Food soil is still on the ware after the cycle.”</i>	Clear screens and arms, then check feed.	● CI Machine Dishwash L-Type ● CI WareWash Enzyme PreSoak	Under-dosing, poor mechanical action, and clogged jets look identical from the rack. Rule out the mechanical causes first, then add a presoak for protein-heavy loads.
<i>“The sanitizer ppm is reading low.”</i>	Check level, pump calibration, and strip freshness.	● CI Sanitrol	Product level, pump drift, eductor dilution, and expired strips are the four causes. Verify all four before changing the sanitizer.
<i>“The beer glasses smell and the heads fall flat.”</i>	Take chlorine out of the glass program.	● CI Bar Glass Cleaner ● CI Sanitrol	Chlorine in wash or rinse is the cause. Non-chlorinated wash chemistry plus iodine at 12 ppm, with no hot-water dilution at the eductor.

WHAT THE SITE REPORTS	FIRST MOVE	PRODUCTS	WHY
FOAM & MANUAL LINE			
<i>“The wash tank is foaming.”</i>	Confirm machine detergent only; rinse before racking.	● CI Machine Dishwash L-Type ● CI WareWash Enzyme PreSoak	Either a manual detergent has entered the tank or presoaked ware went in unrinsed. Drain, refill, and find the source rather than dosing around it.
<i>“Which detergent for the pot sink?”</i>	Standardize one manual product for the sink line.	● CI ZIP Pot & Pan DishWash ● CI Platinum Dish Detergent ● CI Soft & Gentle	Cookware, high-volume sink work, and food-plant duty each have a fit. Pick one as the site standard and keep it out of machine dosing.
<i>“What sanitizes the prep tables?”</i>	Use the surface disinfectant, not the machine sanitizer.	● CI OstroSan Quat	Food-contact surface sanitizing is a separate system from machine rinse sanitizing. The two products are not interchangeable in either direction.

PROGRAM HEALTH CHECK

Nobody can name the final-rinse temperature

If the number is not on a log, the sanitize step is an assumption. This is the first thing an inspector asks and the last thing most sites can answer.

Two machine detergents on the shelf

Parallel detergents mean nobody decided. Alkalinity stacks, glass etches, and results cannot be compared between shifts.

Deliming happens when scale is visible

By then it is already restricting flow and insulating elements. Visible scale is a missed interval, not a schedule.

Four numbers logged every shift

Temperature, ppm, sheeting, rewash rate. A dishroom holding these four can diagnose instead of guess.

Rewash rate flat or falling

The single figure that proves presoak, wash, rinse, and sanitize are working together. Track it and defend it.

Set-points on a wall chart

Feed rates, dwell times, ppm targets, and the delime interval documented where the work happens. A documented program survives turnover.

CI360™ Warewash is a task-based program guide, not a substitute for site-specific procedures. Confirm dilution ratios, dwell times, temperatures, and sanitizer concentrations against current product labels, SDS, and the applicable local health authority requirement before use. Sanitizer concentrations and final-rinse temperatures are regulated values – verify them against your jurisdiction. Follow site SOPs, training, PPE, and applicable regulations. Never mix acid descaler with chlorinated or alkaline chemistry. Product names follow the Chem International catalogue and link to current product information in the digital PDF.

WORKSHEET WW-05	CONTROL RECORD Site machine operating record	STANDARD Measured, posted, reviewed
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Use this commissioning record to turn the seven-section program into visible set-points and a repeatable shift check. Enter only values confirmed against current product labels, SDS, equipment manuals, site SOPs, and local health authority requirements.

SITE / LOCATION _____	MACHINE / ASSET ID _____	CONTROLLER / MODEL _____	MACHINE PROGRAM _____
WATER HARDNESS _____	COMMISSIONING DATE _____	PROGRAM OWNER _____	NEXT REVIEW _____

COMMISSIONED CHEMISTRY AND SET-POINTS			
Stage	Product / method	Target set-point	Verified value
Presoak		Dilution / °C / dwell	
Wash		Feed rate	
Rinse		Sheeting / dry time	
Sanitize	Thermal or chemical	°F or ppm	
Maintain	CI Scalzoff Acid Descaler	Hardness-based interval	

SHIFT VERIFICATION LOG					
Date / shift	Final rinse °F	Sanitizer ppm	Sheeting / dry	Rewash rate	Action / initials

COMMISSIONED BY _____	DATE _____	APPROVED BY _____
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Control rule: Stop and follow the approved corrective SOP whenever the required temperature or sanitizer concentration is not achieved. Never mix acid descaler with chlorinated or alkaline chemistry, and never introduce manual detergent into a machine tank.



CI360™ · WAREWASH

Need a site-specific commissioning package?

CI360 can be translated into controller set-points and a wall-chart commissioning sheet with feed rates, ppm targets, temperature bands, and a delime interval matched to your machines, your controllers, and your water.

[Request a warewash program](#)

[Call 1-800-665-7287](#)

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