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# Products for Critical Cleaning

HOW TO SELECT AND USE DETERGENTS FOR CRITICAL CLEANING APPLICATIONS

- ✓ Laboratory
- ✓ Environmental
- ✓ Pharmaceutical
- ✓ Food & Beverage
  - Dairy
- ✓ Healthcare
- ✓ Veterinary





# Table of Contents

PRODUCTS FOR CRITICAL CLEANING

## **LABORATORY**

Clean and prolong the life of reusable labware, while eliminating residues **4**

## **ENVIRONMENTAL**

The practical, safe choice for cleaning field sampling equipment without cross-contamination **5**

## **PHARMACEUTICAL**

Handle tough critical cleaning jobs, from tablet presses to mixing tanks **6**

## **FOOD & BEVERAGE**

Maintain sanitary processing conditions in accordance with stringent guidelines **7**

## **HEALTHCARE & VETERINARY**

Meet the most demanding criteria for effective cleaning of reusable instruments and equipment prior to sterilisation **8**

## **DETERGENT SELECTION GUIDE**

**9**

## **DIRECTIONS FOR ALCONOX DETERGENTS**

**10**

## **METHODS**

**11**

## **OPTIMIZING YOUR CLEANING PROCESS**

**12**

## **THE ALCONOX RANGE**

**13-14**

# Laboratory

PRODUCTS FOR CRITICAL CLEANING

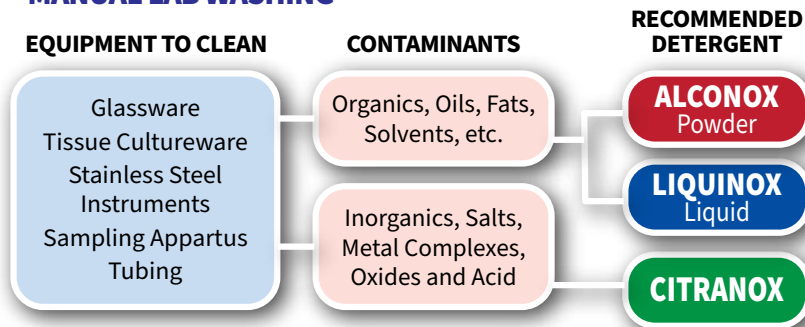
## Clean and prolong the life of reusable labware, while eliminating residues

Laboratory procedures can be compromised by interfering residues that prevent reliable results. At the same time, labware and instrumentation budgets are wasted by cleaners that etch, cloud or damage labware surfaces. Alconox detergents remove interfering residues without causing equipment deterioration - even when handling tough proteinaceous soils or radioisotope decontamination.

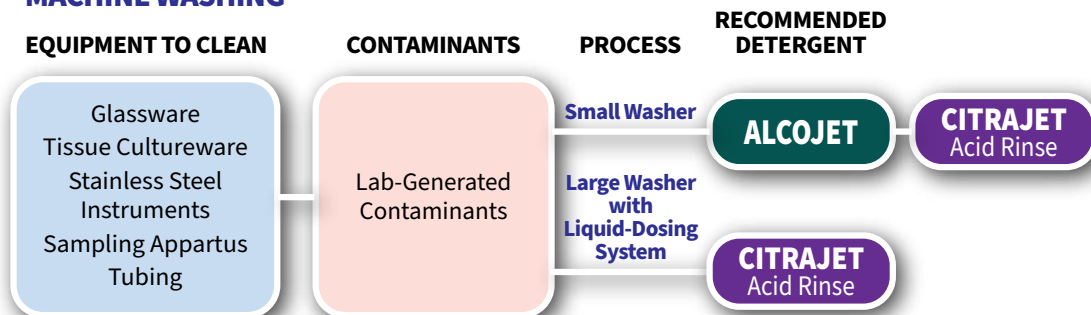
Formulated for all lab cleaning applications, Alconox products work effectively and economically without the hazards of strong acids and solvents, and they are free rinsing, corrosion inhibiting and biodegradable.

## Alconox cleaners handle everything from lab glassware to ceramics and metal

### MANUAL LAB WASHING



### MACHINE WASHING



# Environmental

PRODUCTS FOR CRITICAL CLEANING

## The practical, safe choice for cleaning field sampling equipment without cross-contamination

Accurate environmental testing of ground or surface water, soil or sediment requires the use of clean instruments, free of cross-contamination. From delicate pH meter probes to bailers, split-spoon samplers, augers, dredges and flow-through cells, each require the appropriate process and detergent. Alconox aqueous detergents help maintain the level of testing accuracy required by EPA guidelines - without the risks and hazards associated with solvents. The following equipment is subject to laboratory detergent cleaning guidelines:

- Automatic wastewater sampling equipment
- Silastic rubber pump tubing
- Sounders for measuring ground-water levels
- Submersible pumps and hoses for purging ground-water wells
- Portable augers
- All miscellaneous sampling and flow-measuring equipment

Specifically, United States EPA Environmental Services Division standard cleaning procedures require a “phosphate-free laboratory detergent such as LIQUINOX” for Teflon®, glass and stainless steel equipment used to sample trace organic compounds or metals.

## Alconox environmental cleaning products for field and lab applications

### LIQUINOX

- High-emulsifying phosphate-free formulation, with a unique blend of free-rinsing ingredients
- No post-rinse contaminating residues; no interference with phosphate-sensitive analytical equipment
- Convenient handling - small quantities can be safely disposed of after use without special procedures or precautions

### TERGAJET Powder

- Reliable results in laboratory dishwasher cleaning of sampling equipment and containers Phosphate-free
- Tergajet for under-counter washers with powder cup dosing
- Solujet for larger washers with liquid dosing systems

### CITRAJET Acid Rinse

### TERGAZYME

- Recommended for samples containing biological contamination



ROWE CODES & PRODUCT SIZES ON PAGES 11 & 12

# Pharmaceutical

PRODUCTS FOR CRITICAL CLEANING

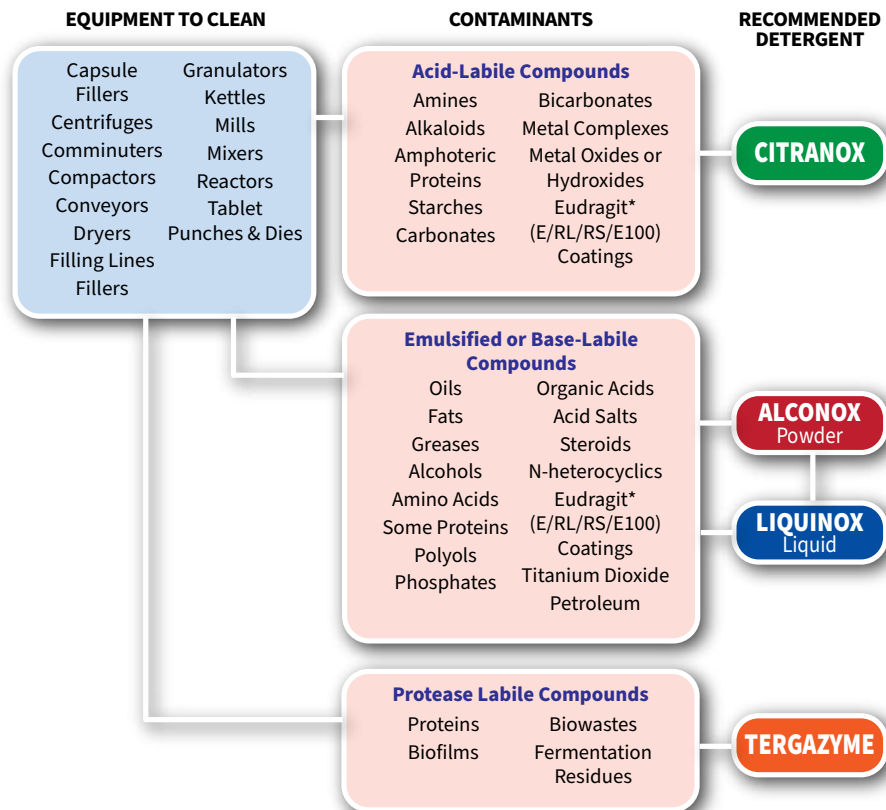
## Handle tough critical cleaning jobs, from tablet presses to mixing tanks

If you have pharmaceutical or biotechnology production machinery that must be clean and free of interfering residues, Alconox has an acidic, neutral or alkaline biodegradable detergent for the job, meeting applicable disposal requirements. Whether your process is manual, immersion or circulate CIP, almost any glass, plastic, metal, rubber or porcelain surface can be safely, effectively and economically cleaned with an Alconox detergent.

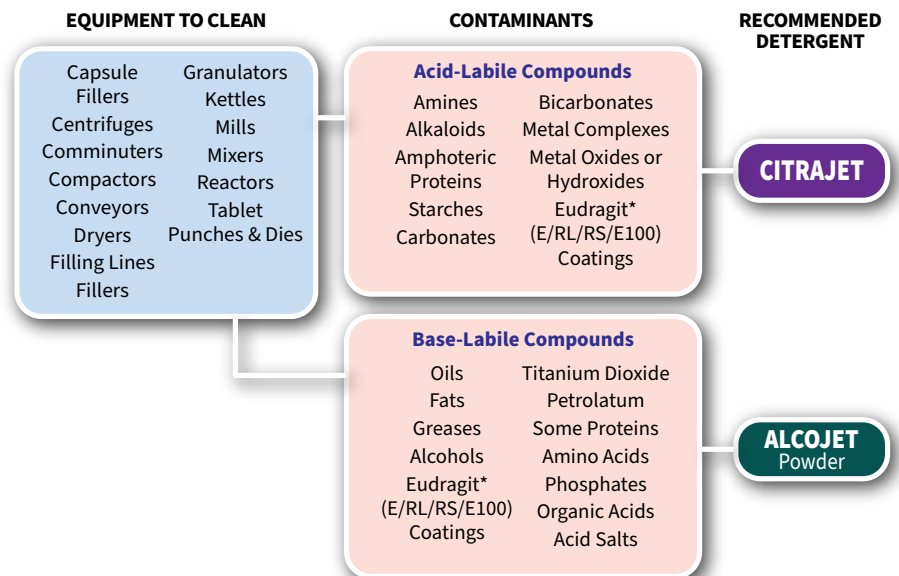
Alconox detergents are available worldwide with consistent formulations, certificates of analysis, ingredient toxicity data, shelf life information, residue sampling techniques, ingredient disclosure, analytical methods, lot number tracking, and validation support.

## Clean all processing surfaces, difficult residues and types of processing equipment

### MANUAL, SOAK, ULTRASONIC



### MACHINE WASHER, SPRAY, CLEAN IN PLACE (and combined manual)



# Food & Beverage

PRODUCTS FOR CRITICAL CLEANING

## Maintain sanitary processing conditions in accordance with stringent guidelines

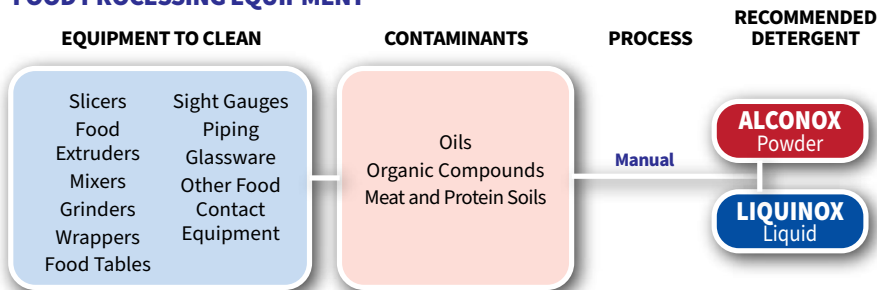
Critical cleaning of food, beverage and dairy processing equipment has a direct impact on the quality of food and beverage products. Alconox food-grade cleaners are effective for cleaning and prolonging the service life of food processing equipment - including difficult food-grade dairy cleaning, or UF and RO installations.

Alconox detergents are authorized by the United States Department of Agriculture (USDA) for use in federally inspected meat and poultry plants. Many food and beverage processors prefer Alconox detergents for their ability to remove stubborn meat and milk soils without leaving interfering residues.

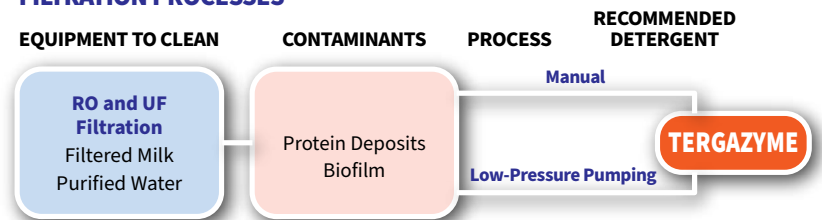
From pilot labs to full production, packaging and bottling, Alconox manual, automatic and clean-in-place detergents help food, dairy and beverage processors maintain product purity to agar-plate-proven standards, increase throughput and improve profitability.

## Helping achieve higher yields with less waste

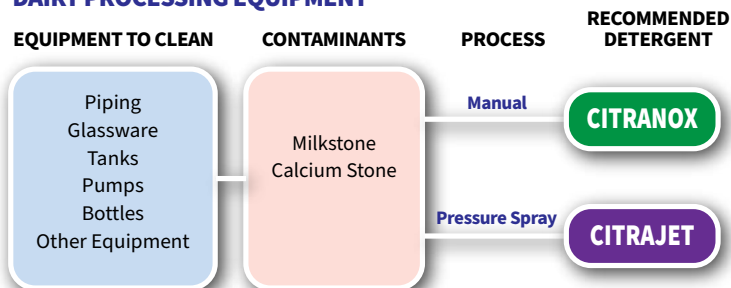
### FOOD PROCESSING EQUIPMENT



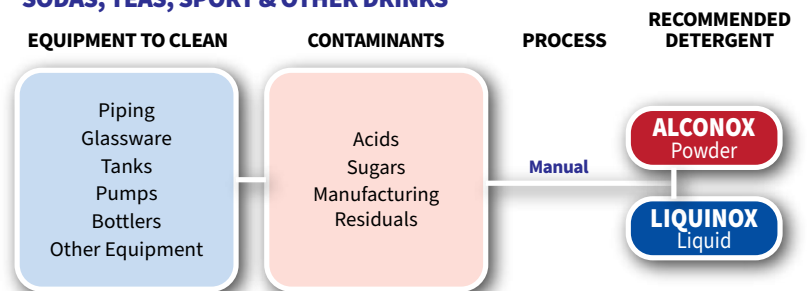
### FILTRATION PROCESSES



### DAIRY PROCESSING EQUIPMENT



### SODAS, TEAS, SPORT & OTHER DRINKS



ROWE CODES & PRODUCT SIZES ON PAGES 11 & 12

# Healthcare & Veterinary

PRODUCTS FOR CRITICAL CLEANING

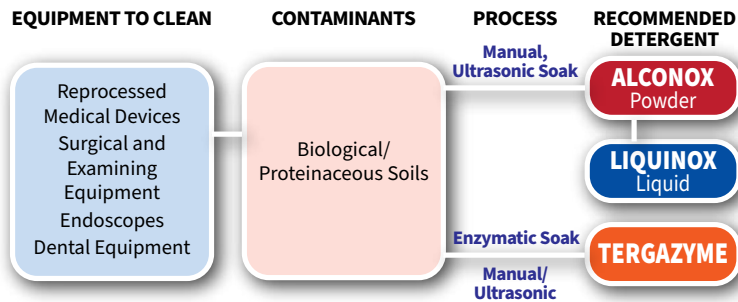
## Meet the most demanding criteria for effective cleaning of reusable instruments and equipment prior to sterilisation

Healthcare cleaning procedures are intended to keep instruments and equipment clean and ready for sterilisation, prolong their working life, minimize cross-contamination and reduce medical waste.

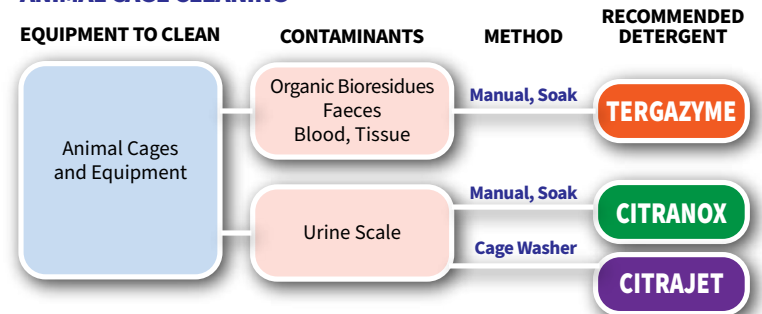
When proteinaceous soils such as blood or mucus must be removed, adding an enzyme to the detergent formula allows instruments to clean via soaking and gentle cleaning, rather than by abrasive scrubbing. This prolongs their working life and decreases the chance of microbial contamination. Corrosion inhibited detergents give effective low-foam cleaning in automated washers and cage washers.

## The right cleaner for every medical device reprocessing application

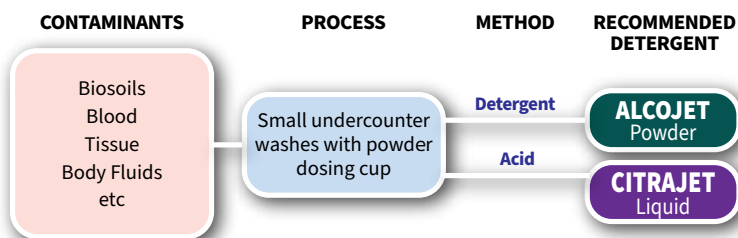
### MANUAL, ULTRASONIC, SOAK



### ANIMAL CAGE CLEANING



### AUTOMATIC WASHERS AND SPRAY RINSE



ROWE CODES & PRODUCT SIZES ON PAGES 11 & 12



# DETERGENT SELECTION GUIDE

INDUSTRY/APPLICATION KEY CONCERNS	ARTICLES CLEANED/SOIL REMOVED	CLEANING METHOD	Powder	Liquid
<b>HEALTHCARE/VETERINARY</b> Effective preparation for sterilisation, longer instrument life. Reduce waste.	Surgical, anaesthetic, and examining instruments and equipment. Catheters and tubes.	Manual, Ultrasonic, Soak	ALCONOX	LIQUINOX
		Machine washer, sani-sterilizer	ALCOJET	
	Blood, body fluids, tissue on instruments.	Manual, Ultrasonic, Soak	TERGAZYME	
<b>PHARMACEUTICAL/MEDICAL DEVICE/ BIOTECHNOLOGY</b> Passing cleaning validation for FDA good manufacturing practices. For stainless steel, glass, plastic, elastomer cleaning.	Titanium dioxide, petrolatum, oils, emulsions, ointments, carbopols, lacquers, zinc oxides, proteins, steroids, alcohols, sugars, and Eudragit* (L/S/L30/D55/NE30D) polymers.	Manual, Ultrasonic, Soak	ALCONOX	LIQUINOX
		Machine washer, power wash, CIP	ALCOJET TERGAJET (p-free)	
	Inorganic residues, salts, metallics, pigments. Eudragit* (E/RL/RS/E100) polymers, amphoteric, coatings, amines, ethers, starches, alkaloids.	Manual, Ultrasonic, Soak		CITRANOX
		Machine washer, power wash, CIP		CITRAJET
	Protein/ferment residues. R/O, U/F membranes.	Manual, Ultrasonic, Soak	TERGAZYME	
<b>LABORATORY/ENVIRONMENTAL</b> Reproducible results, no interfering residues, extending equipment life. Keep laboratory accreditation. Laboratory safety.	Glass, metal, plastic labware, ceramics, tissue culture, porcelain, clean rooms, animal cages, bioreactors, tubing, benches, safety equipment.	Manual, Ultrasonic, Soak	ALCONOX	LIQUINOX (p-free)
		Machine, power spray, labware washer, washer-sterilizer, cage-washers	ALCOJET TERGAJET (p-free)	
	Tubes, reusable pipets.	Siphon-type washer-rinsers	ALCOTABS (tablet)	
	Microbiology, water lab, and environmental sampling. Phosphate-sensitive labware. EPA procedures. (Acid for water rinse cycle.)	Field, Manual, Ultrasonic, Soak	TERGAJET	LIQUINOX
		Machine washer, labware washer	TERGAJET	
	Radioactive equipment/contaminants. Stopcock grease.	Manual, Ultrasonic, Soak	ALCONOX	LIQUINOX
		Machine washer, warewasher	ALCOJET	
	Trace metals, metal oxides, scale, salts, starches, amines.	Manual, Ultrasonic, Soak		CITRANOX
		Machine washer, warewasher		CITRAJET
		Proteinaceous soils, bio-wastes, tissue, blood and other body fluids, fermentation residues.	Manual, Ultrasonic, Soak	TERGAZYME
		Glassware washer	ALCOJET	
<b>FOOD SERVICE &amp; FOOD MANUFACTURING</b> Avoid interfering residues on food-contact equipment and effectively remove soils commonly found in food operations. For complete food service detergent selection guide, visit <a href="http://AlconoxFoodservice.com">AlconoxFoodservice.com</a> .	Stainless steel, glass, and food production equipment.	Manual, Ultrasonic, Soak	ALCONOX	LIQUINOX
		Machine wash, pressure wash, CIP	ALCOJET	
	Oxides, scale, trace metals, salts, milkstone and corrosion.	Manual, Ultrasonic, Soak		CITRANOX
		Machine wash, pressure wash, CIP		CITRAJET
	Filter membranes, proteins, biofouling.	Manual, Ultrasonic, Soak	TERGAZYME	

# How to

## DIRECTIONS FOR ALCONOX DETERGENTS

Directions: Dilute detergent (see chart) using warm (about 50°C) or hot (about 60°C) water. Ambient temperature water may be acceptable, especially for pre-soak. For difficult soils, use very hot water (above 65°C) and double the recommended amount of detergent. When cleaning solution may be reused, make up fresh solutions frequently as needed.

PRODUCT	FORM	FOAM	DILUTION (%)	RECOMMENDED AMOUNT gm/L or mL/L	MINIMUM WASH TEMPERATURE	USUAL WASH TEMPERATURE	MAXIMUM WASH TEMPERATURE
ALCONOX	Powder	Yes	1	10	Ambient	Warm	Boiling
TERGAZYME	Powder	Yes	1	10	Ambient	43 - 49°C	54°C
LIQUINOX	Liquid	Yes	1	10	Ambient	Warm	Boiling
CITRANOX	Liquid	Yes	1 - 2	10 - 20	Ambient	Hot	Boiling
ALCOJET	Powder	No	1/2 - 1	5 - 10	Warm	Hot	Boiling
ALCOTABS	Tablet	Yes			Ambient	Ambient	Boiling
LUMINOX	Liquid	No	2 - 5	20 - 50	Ambient	Warm	Boiling
CITRAJET	Liquid	No	1 - 2	10 - 20	Ambient	Hot	Boiling
TERGAJET	Powder	No	1/2 - 1	5 - 10	Warm	Hot	Boiling
DETONOX	Liquid	Yes	1 - 3	10 - 30	Ambient	Warm	Boiling

## SOAKING

**Recommended:**

ALCONOX

LIQUINOX

DETONOX

CITRANOX

TERGAZYME

LUMINOX

ALCOJET

CITRAJET

TERGAJET

**Typical Use:** To clean small items - hospital catheters and tubes, small metal parts - and large tank interiors, including pharmaceutical and other blending tanks. An excellent pretreatment method for loosening soils and preventing drying prior to further cleaning - especially for labware or medical instruments.

**Advantages:** Very little physical effort or expense.

**Concerns:** Extremely dirty articles or difficult soils may require further cleaning.

**Directions:** Soak, completely submerged in solution, until clean. This may take several hours, depending on the type of soil. Remove and rinse thoroughly.

## ULTRASONIC CLEANING

**Recommended:**

ALCONOX

LIQUINOX

DETONOX

CITRANOX

TERGAZYME

LUMINOX

ALCOJET

CITRAJET

TERGAJET

**Typical Use:** To clean multiple batches of articles or for fast, convenient cleaning.

**Advantages:** Fast, effective, reproducible, penetrating cleaning.

**Concerns:** Capital cost, material tolerance for ultrasonic agitation.

**Directions:** Make up detergent solution in a separate container.

- Add detergent, run machine 10 minutes to degas, allow heater to heat.
- Place groups of small articles in racks or baskets.
- Align irregularly shaped articles so the long axis of any part faces the ultrasonic transducer (usually the bottom).
- Immerse articles to be cleaned for 2 - 10 minutes, or longer, as needed. Remove and rinse thoroughly.
- Orient or rotate parts to release air from blind holes

## MACHINE WASHERS

**Recommended:**

ALCOJET

CITRAJET

TERGAJET

**Typical Use:** For high-volume cleaning using washer-sanitizers, warewashers, conveyor-washers, or spray and pressure washers.

**Advantages:** Fast, effective, high volume cleaning.

**Concerns:** Capital cost, article's ability to withstand machine washing conditions.

**Directions:** Load articles into racks so that open ends face toward spray nozzles. Place difficult-to-clean articles with narrow necks and openings near the center of the rack, open-side down, preferably on special racks with spray nozzles pointing directly into them. Minimize touching between articles. Minimize fluid trapping orientation of parts - optimize drainage.

- Group small articles in baskets to prevent dislodging by spray action.
- Use only low foaming detergent as per machine manufacturer dose instructions. If no instructions, use a 1% solution of wash water. Use more or less as needed.
- Use hot water (above 60°C).
- Use CITRAJET as an acid rinse and neutralizer where desired.

Most machines have at least three rinse cycles. Refer to machine manufacturer's directions.

# Optimizing Your Cleaning Process

## BATH-O-CARD:

This acronym is formed from the first letter in each of the nine critical variables in cleaning. And each offers opportunities for cleaning process optimization.

**BEFORE CLEANING** - Presoak, prevent residues from drying and hardening, or stop any pre-cleaning procedures that make cleaning more difficult.

**AGITATION** - The more agitation, the better. Add or increase scrubbing, ultrasonic, spraying or flowing.

**TIME** - The longer the cleaning, the more available cleaning capacity is used. Until you run out.

**HEAT** - Every 10°C increase in cleaning temperature, doubles the cleaning speed. Clean as hot as practical, without damaging your substrate.

**ORIENTATION** - Surfaces must be oriented to contact cleaning solution and rinse water. Also, rotate parts to release air in blind holes, and rack to prevent holding liquid between surfaces.

**CHEMISTRY** - Use detergent suitable for the type of residue (acid or alkaline) and cleaning method (low foam for high agitation; high foam for immersion and ultrasonic).

**AFTER CLEANING** - Avoid recontamination and corrosion causing humidity and heat.

**RINSE** - Use suitably pure rinse water to avoid rinse water residues. Hot rinse avoids breaking emulsion and redepositing. Cold rinse reduces corrosion.

**DRY** - Removing water by alcohol dip, wiping, blowing or centrifuge reduces rinse-water residues and corrosion. (See following section for more information.)

## CORROSION INHIBITION

Corrosion during cleaning is accelerated by the same things that accelerate cleaning: heat, aggressive chemicals, time, and agitation. To reduce metal corrosion, in approximate order of effect, use less heat, corrosion inhibited detergents, lower pH or pH appropriate detergents, shorter cleaning time, and less agitation. Avoid mixed metals in the same bath that form batteries and deposit galvanic oxides. The following techniques may work to limit corrosion, based on the material and/or process involved:

- **METAL:** Use the mildest pH detergent and avoid mixed metals in the same bath.
- **ALUMINUM:** After abrasion exposes pure metal surface, allow air passivation time prior to cleaning. Use mild acid cleaners such as CITRANOX or CITRAJET to avoid alkaline attack.
- **PLASTIC:** Use less aggressive cleaners, containing less solvent or surfactant character. Or use lower concentrations of those cleaners, lower cleaning temperatures, less contact time, and less agitation. For stressed polycarbonate and acrylic use surfactant-free DETOJET for cleaning. Unstressed material is not a concern. Avoid alkaline cleaners on polyurethane.
- **MILD SENSITIVE STEEL:** Avoid “flash rusting” by rinsing with cold water and using rapid water-removing drying techniques such as dipping in isopropyl alcohol to form an evaporating azeotrope that removes water safely, centrifuge dry, wipe dry, air knives, and drying with oxygen-free gas such as dry nitrogen. Or add a suitable corrosion inhibitor to the rinse water, as long as you can tolerate corrosion-inhibitor residues. Do not use evaporative drying such as air drying or oven drying.
- **SENSITIVE STEEL:** Clean with an inhibited cleaner and isopropyl alcohol rinse (or add a corrosion inhibitor to the rinse water).
- **GALVANIC CORROSION:** Avoid mixed metals in the same bath that can form a battery and deposit oxides on one of the metals. For example, many metals will plate out their oxides on aluminum if the two metals are cleaned in the same bath. Intact stainless steel is generally OK as a mixed metal, but iron, steel, brass, aluminum, bronze and other metals can be a problem mixed with other metals.

## BATH LIFE EXTENSION & CONTROL

For the highest levels of critical cleaning, especially to avoid cross contamination, only freshly prepared solutions should be used. For industrial cleaning applications, however, bath life can be extended while still achieving high levels of cleaning.

### BATH LIFE EXTENSION TECHNIQUES:

- Filtering particulates
- Cooling and settling of sludge
- Cooling and skimming oils
- Adding half again as much detergent as the initial load after partially depleting the cleaning life of a bath

Conductivity, pH and % solids by refractometer can be used to measure bath detergent concentration. In general, a pH change of 1 unit toward neutral indicates an exhausted cleaning solution. Under frequent daily use, detergent solutions can rarely be used more than a week, even when being extended.

Free-alkalinity titration can be used to extend bath life where the soils deplete free alkalinity, as follows:

- Titrate a fresh solution to determine free alkalinity
- Titrate the used solution to determine the percent drop in free alkalinity
- Add detergent to the used bath to bring the free alkalinity back to the new-solution level

For example if your initial solution contains 100mL of cleaner concentrate and there is a 25% drop in free alkalinity, try adding 25mL of cleaner concentrate to recharge the solution. Perform a new free-alkalinity titration the first few times to confirm that the detergent is linear with respect to free free-alkalinity depletion. This bath-life extension cannot be repeated indefinitely: sludge will eventually form, requiring a fresh solution.

# The Alconox Range

## ALCONOX

### POWDERED PRECISION CLEANER

Original general-purpose powder for manual, soak, and ultrasonic cleaning of glass, metal and plastic. No interfering residues. Has inhibitory residue test. USDA/FDA compliant. Dilute 1:100. pH 9.5

1.8kg      9 x 1.8kg

CA0537      NA0020



## CITRANOX

### LIQUID ACID CLEANER & DETERGENT

Liquid acid cleaner for manual, soak and ultrasonic cleaning or acid neutralizing. Corrosion-inhibited for glassware, metals and plastic. Surfactant rinse aids for no interfering residues. Has inhibitory residue test. USDA and FDA compliant. Dilute 1:100. pH 2.5

3.8L      4 x 3.8L

CC0601      CC6480



## LIQUINOX

### DETERGENT

Critical Cleaning Liquid Detergent. Original general-purpose, phosphate-free liquid for manual, soak and ultrasonic cleaning of glass, metal and plastic. No interfering residues. Has inhibitory residue test. USDA/FDA compliant. Dilute 1:100. pH 8.5

3.8L      4 x 3.8L

CL0857      NL0009



## TERGAZYME

### ENZYME-ACTIVE POWDERED DETERGENT

Enzymatic cleaner for manual, soak and ultrasonic cleaning of proteins, tissue, body fluids from glass, metals and plastic, with no interfering residues. Cleans filter membranes, fermenters and bioreactors. Has inhibitory residue test. FDA/USDA compliant. Dilute 1:100. pH 9.5

1.8kg      9 x 1.8kg

CT4856      CT4857



## DETONOX

### DETERGENT

Non-caustic, liquid concentrate detergent for hand and ultrasonic use on challenging residues. Exceptional removal of cosmetic and pharmaceutical polymers, sticky extracts, resins, creams and lotions. Concentrated, highly emulsifying and penetrating formula is free rinsing for reliable results, and leaves no interfering residues. Dilute 1:100. pH 10.5

3.8L      4 x 3.8L

ND0033      ND0029



## LUMINOX

### LOW-FOAMING, NEUTRAL pH DETERGENT

Suitable for use in manual, ultrasonic and machine or noncorrosive, light-duty cleaning. No chelation or alkaline waste treat problems. Free rinsing, eliminating interfering residues. Dilute 3:100. pH 7.0

3.8L      4 x 3.8L

NL0011      NL0010



# The Alconox Range

## ALCOJET

### LOW-FOAMING POWDERED DETERGENT

General-purpose non-ionic powder for labware and machine washers, manual, and ultrasonic cleaning. Corrosion-inhibited for glassware, metals and plastic. No interfering residues. Has inhibitory residue test. USDA authorized. Dilute 1:200. pH 11.5

1.8kg	9 x 1.8kg
CA0489	NA0023



## CITRAJET

### LIQUID ACID CLEANER

Suitable for machine, spray-CIP, manual and ultrasonic cleaning or acid neutralizing. Corrosion-inhibited for glassware, metals and plastic. Surfactant rinse for no interfering residues. Has inhibitory residue test. FDA compliant. Dilute 1:100. pH 2.5

3.8L	4 x 3.8L
CC0061	NC0044



## TERGAJET

### PHOSPHATE-FREE, NON-IONIC POWDER

Suitable for machine washers, hand and ultrasonic cleaning. Corrosion-inhibited for labware. For water, microbiology and environmental labs. No interfering residues. Has inhibitory residue test. Dilute 1:200. pH 11.5

1.8kg	9 x 1.8kg
NT0050	NT0049



**We have chosen not to feature any of the Alconox range which are dangerous goods as we do not stock and freight is expensive. If required - please enquire.**

## DETOJET

Heavy-duty alkaline degreaser. Nonionic liquid for labware and machine washers, manual and ultrasonic cleaning. Corrosion-inhibited for glass, metals and plastic. No interfering residues. Has inhibitory residue test. USDA/FDA compliant. Dilute 1:200. pH 12

## SOLUJET

Nonionic liquid for machine, spray-CIP, manual, soak and ultrasonic cleaning. High emulsifying and penetrating formula. Corrosion-inhibited for glass, metals and plastic. No interfering residues. Has inhibitory residue test. FDA compliant. Dilute 1:200. pH 12

## DETERGENT 8

Nonionic detergent for PC board washing machines, manual and ultrasonic cleaning. Ion and chelate free for no conductive residues on electronics and no chelate interference in waste. Phosphate-free. Dilute 3:100. pH 11

**Larger pack sizes available - but not stocked. Please enquire.**





chemicals



Bel-Art Products



cowie

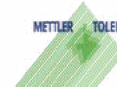
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cryokit®

KartellLABWARE

filtration



glassware



MERCK



CRM



plasticware



pipettors instruments



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