

MP Biomedicals

7X™ Cleaning Solutions



the **IDEAL CLEANING SOLUTION**
for manufacturing and
laboratory equipment

- Multipurpose cleaner
- Powerful and Effective
- Gentle on hands
- Biodegradable
- Environment-friendly

MP Biomedicals Worldwide	MP Biomedicals Europe	MP Biomedicals Asia Pacific			
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5. 7X™ Products at a Glance

DNA and RNase Decontamination

RNase Erase® and Water, DNase, RNase-Free
Spray on and rinse for an RNase-free surface. Completely removes RNase contamination from bench tops, glass and plasticware. RNase Erase is nontoxic and comes packaged with spray bottle for ease to use. RNase-Free water is treated with 0.001% diethylpyrocarbonate (DEPG); sterile-filtered and autoclaved; completely free detectable DNase.

Cat. No.	Description	Price
112440204	RNase Erase, 500mL	\$67.40
04821739	Water, DNase and RNase-Free	\$74.80

DNA-Erase™

Effectively removes all contaminating DNA and PCR artifacts from laboratory surface apparatus and pipettors. Supplied ready-to-use in squeeze bottle; heat resistant and stable at room temperature.

Cat. No.	Description	Price
04821805	DNA-Erase, 500mL	\$44.85

DNA OFF™

Non-corrosive cleansing solution with surfactant highly effective for destroying DNA at PCR workstations including bench tops, apparatus and pipettors. Apply DNA OFF followed by rinsing. Supplied ready-to-use. Heat resistant and stable at room temperature.

Cat. No.	Description	Price
11QD0500	DNA OFF, 500mL	\$43.00

Radioactive Decontamination

Dekasol® Radioactive Decontamination Solution
Diluted to 10% (v/v). Dekasol removes radioactivity from the surface of laboratory glassware and equipment. Dekasol towelettes remove contaminants from surfaces and hands without extensive scrubbing.

Cat. No.	Description	Price
0180802601	Dekasol®, 1 gal	\$51.00
0180802780	Dekasol® Towelettes, 100/pk	\$64.00

Bench Top Cleaning

Oxy Spray Surface Cleaner

Spray bottle format contains the power of oxygen to remove organic material, dirt, grease and stains from surface. Wipes clean.

Cat. No.	Description	Price
0976693A6	Surface Cleaner, 24oz.	\$7.70

Absorbent Paper

Prevent spills from reaching work surface, such as bench tops. Absorbent paper is 0.075' thick and backed with polyethylene. Roll is 300ft x 20".

Cat. No.	Description	Price
01808462	Absorbent Paper, 2 rolls	\$373.00

Request your free sample of 7X™ today!

Available exclusively from MP Biomedicals



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1. What is 7X™?

The 7X™ detergent product line provides safe and effective cleaning solutions for glass or plastic lab ware and many more applications. Simply add 7X™ concentrate to purified water to make the finished detergent. No mixing or pH adjustment is necessary!

No clumping

- ▶ all 7X™ detergents come in liquid form for easy pouring and dispensing

Rinses clean with water

- ▶ prevents harmful buildup of residue

Near-neutral pH

- ▶ no neutralizing rinse required and gentle on hands

Aqueous formulation

- ▶ can be disposed of down the drain

7X™ concentrate is available in a range of package sizes and options, from 1 to 55 gallons, and is so economical you can stock up and be sure not to run out.

How it all started

The original 7X™ recipe was created at Linbro Chemical Company in 1950, by Dr. John Liner...who is also credited with developing the first 96-well plate! The product was an immediate hit...check out an early “debut” from the Journal of Immunology in 1962!

Over the years, Linbro became part of the MP Biomedicals family, but Dr. Liner’s formulation for a residue-free, antibacterial detergent has remained a lab favorite. We also now offer a few “modern day” options such as a phosphate-free formula, ready to use formulas and the 7X-O-Matic for

automatic washing machines and other hands-free cleaning equipment.



2. Key Components - the Secret Ingredient

In any of its varieties, the 7X™ product line is more than just a simple soap. This proprietary recipe has some unique features derived from a few, simple components:

- ▶ A strong sequestering reagent
- ▶ A completely soluble, non-toxic solvent which leaves no residue
- ▶ A quality anionic surfactant for chemical wetting, foaming and emulsification

This “AAA” combination makes up the ideal solution for applications which require high-efficiency cleaning, yet with low cell toxicity, as well as being non-corrosive for target surfaces, especially glass.

Technical Note: 7X™ detergents do not contain fluorescence components. This is a critical consideration for items such as test tubes, microscopy slides, and pathology equipment and optical components. Choose 7X™ and you’re covered for cleaning of nearly all of your lab equipment both in every day bench top use, and for large scale industrial and manufacturing needs.



2.1 More Features That Make 7X™ So Popular

The 7X™ detergent product line provides safe and effective cleaning solutions for glass or plastic labware and many more applications. Simply add 7X™ concentrate to purified water to make the finished detergent. No mixing or pH adjustment is necessary!

No clumping

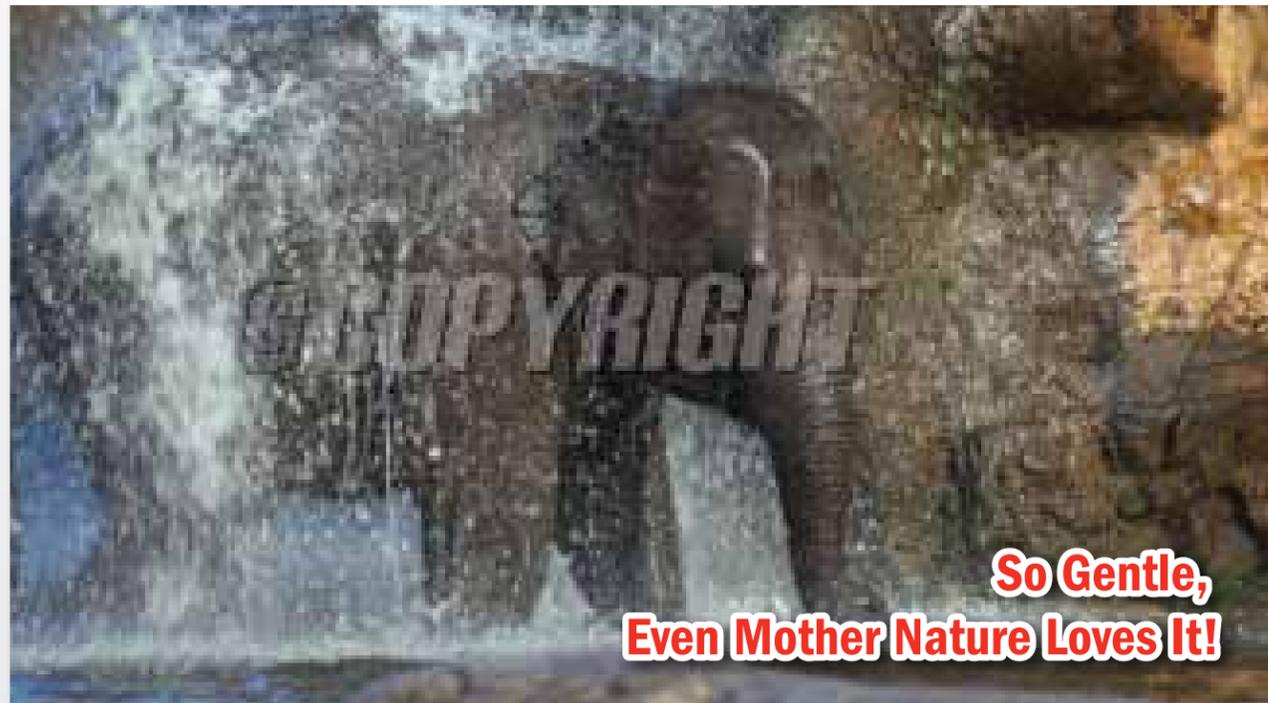
- ▶ all 7X™ is a liquid solution for easy pouring and dispensing, and are safely disposed down the drain.

Solubility

- ▶ these solutions are completely soluble in water at any concentration and will drain completely from glassware in only a few seconds, for thorough cleaning without residue or etching of delicate glassware.

Ready to go

- ▶ preps up at a neutral pH range, e.g. a 5% solution of 7X™ solution, prepared with distilled water, will have a pH range of 6.0 to 7.5. There is no need to adjust pH for this easy-to-prepare solution, and it's extremely gentle on hands!



**So Gentle,
Even Mother Nature Loves It!**

3. A Detergent for Life Science Research

Did you ever think that a detergent would be part of a biological protocol? That's how gentle and effective 7X™ Cleaning Solutions are. In fact, 7X™ solutions are non-toxic for the majority of eukaryotic cells. As a result, not only are they detergents of choice for cleaning lab equipment from bench top to bioreactor, 7X™ detergent solutions are published for use in a variety of life science protocols. Unlike other products in its class, 7X™ is a cleaning solution with over 8,000 scientific citations to back it up. We are proud to present a sampling of publications which include MP Biomedicals' 7X™ line:

- ▶ Cited as the preferred method for cleaning a glassware and plasticsware for human in vitro fertilization.¹
- ▶ Pretreatment of plant seeds to increase synchronicity, rate and speed of germination, isolation of dissolving sperm tail and body for isolation of intact achrosomes.²
- ▶ Preparation and cleaning of machined titanium implants.³
- ▶ Cleaning human hair samples for evaluation of environmental contaminants or physiological content.^{4,5}
- ▶ Cell harvesting from solid tissues.⁶
- ▶ Emulsification reagent for extraction of parasite oocysts from soil samples.⁷
- ▶ Preparation of micro-sized glass capillary tubes for intra-cytoplasmic sperm injection into ovas and in vitro fertilizations.⁸
- ▶ Preparing capillaries and needles for cellular micromanipulations.⁹
- ▶ Preparation of slides for membrane tubulation assays.¹⁰
- ▶ Analysis of virus envelope proteins and their stability to inactivation protocols.¹¹

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11. D.A. Coil, J.H. Strickler, S.K. Rai, and A.D. Miller, "Jaagsiekte Sheep Retrovirus Env Protein Stabilizes Retrovirus Vectors against Inactivation by Lung Surfactant, Centrifugation, and Freeze-Thaw Cycling. J. of Virology, 75 (2001), pp. 8864 - 8867.

3.1 See for Yourself

The efficacy of 7X™ detergent in removing bacteria and microbial debris from glass cover slips has been evaluated using environmental scanning electron microscopy (ESEM) by the University of Miami, Dept. of Chemistry.

7X™ Detergent effectively removes *Pseudomonas aeruginosa* from Cover Slips

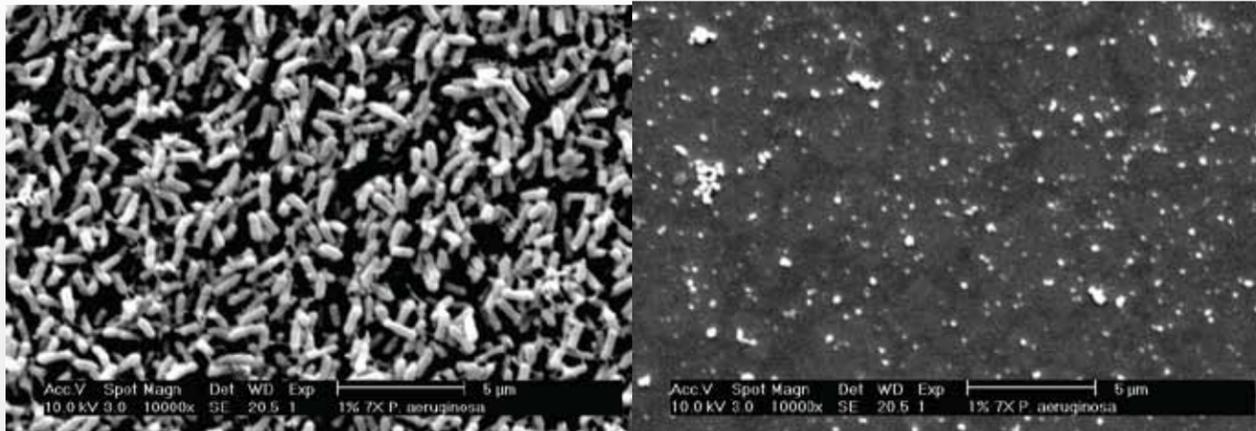


Figure Legend: 1% Detergent 7X™ immersion effected *P. aeruginosa* adhesion to cover slips. The distribution of bacteria on the non-immersed portion of the cover slip indicates the substrate is covered with bacterial cells (left panel). After treatment with 1% detergent 7X™ (right panel) a few intact bacteria were evident, however, the organic cellular debris present was much less evident than in the distilled water treatment. (Images and Data from Center for Advanced Microscopy, Chemistry Department, University of Miami, Courtesy of Prof. Roger M. Leblanc, Unpublished work, 2011).

3.2 University of Miami, Dept of Chemistry - An in depth evaluation

An independent study by University of Miami, Dept. of Chemistry, was conducted to compare the properties and efficacy of MP Biomedicals' 7X™ Cleaning Solution with two commercially available laboratory detergents as follows:

Products Chosen for Evaluation

- ▶ 7X™ Cleaning Solution (MP Biomedicals)
- ▶ Contrex AL (Decon Labs)
- ▶ Liquinox (Alconox, Inc)

3.3 pH values – the Basis for 7X's Optimal Range

The three active ingredients (fatty acids) of these detergents are all sodium salts. When dissolved in water, the detergent's salt component drives the value for the pH of the solution.

Detergent	pH Range*
7X Cleaning S solution	6.0 to 7.5
Contrex AL	8.0 to 9.0
Liquinox	8.5

*as reported on MSDS from product manufacturer

The pH value of the 7X™ Cleaning Solution is closer to an average value of pH 7 as it contains a higher concentration of quadrafos (hexasodium tetraphosphate), in combination with a lower relative concentration of the sodium salt dioctyl sulfosuccinate (1-5%). This optimal pH range provides you with a less corrosive detergent that is also gentler for your hands.

3.4 Clean Rinsing

Each of the test detergents was prepared at comparable working concentrations of 1% (v/v) and used to soak sample glassware for 3 hours, in keeping with "typical" laboratory cleaning protocols. After applying the recommended rinsing protocol for each product, the glassware was subsequently filled (rinsed) with ultra-pure water which was then tested for the presence of any residual detergent in these vessels. The water samples were tested using standard, commercially available detergent test kits, e.g., CHEMetrics Kit (www.CHEmetrics.com; catalog No. K-9400) and the Hach kit (www.hach.com; Detergents Test Kit Model DE2, Catalog No. 1432-03), as well as testing by UV-vis spectroscopy, demonstrating that surfaces washed with 7X™ detergent has a more "homogeneous surface" in terms of lack of agglomerates of detergent as seen for Contrex AL and Liquinox.

Detection/Detergent Brand	Residue Test Comparison		
	Chemetrics (ppm)	Hach (ppm)	LaMotte (ppm)
Supplier A	0 - 0.25	1	0
Supplier B	0 - 0.25	1	0.7
7X™ Cleaning Solution	0	1	0 - 0.2

1% cleaning solutions of 7X™ detergent and two leading detergent suppliers were analyzed for residue after cleanign and rinsing with ultrapure water. Three commercially-available detergent residue kits from Chemetrics, Hach and LaMotte were used for residue analysis following each manufacturer protocol. Complete Application Note available at www.mpbio.com/7x.



4. Get it Right – Formulations and Size Options

Since the introduction of 7X™ Cleaning Solution more than 50 years ago, a few key modified formulations have been introduced to further support industrial applications and environmental friendly labs. From our environmentally conscious phosphate-free options to our most recent addition of pre-mixed 5% solutions in convenient hand pump dispensers.

Utility Note: 7X™ can be used from 1% to 7% final concentration. For example, each gallon of 7X™ Cleaning Solution makes up to 128 gallons of 1% working solution, or 36 gallons of 2.8% working solution. Simply add 7X™ concentrate purified water to make the finished detergent. No mixing or pH adjustment is necessary!

7X™ Cleaning Solution - This original version is designed to clean laboratory plastic and glassware simply by soaking for 2-3 hours, with little or no scrubbing needed. The 7X™ concentrate is typically diluted to a final working solution (v/v) of 1-2% so that a single gallon concentrate can make 50-100 gallons of cleaning solution!

Name	Pack Size	Cat. No.	Price
7X™ Cleaning Solution	1 gal	97667093	\$32.55
7X™ Cleaning Solution	4 x 1 gal	97667094	\$94.75
7X™ Cleaning Solution	5 gal	97667095	\$94.75
7X™ Cleaning Solution	55 gal	97667098	\$839.00
7X™ Ready to Use 5% Cleaning Solution	1 gal	97668093	\$24.55
7X™ Solution is a 6-pack of premeasured 5% refill AND an empty 1-gallon bottle (for \$2 more)	1 pack (6 x 6.4 oz)	0976680A2	\$90.40
7X™ is a 6-pack of premeasured 5% refill	6 x 6.4 oz	0976680RF	\$88.40

1% cleaning solutions of 7X™ detergent and two leading detergent suppliers were analyzed for residue after cleanign and rinising with ultrapure water. Three commercially-available detergent residue kits from Chemetrics, Hach and LaMotte were used for residue analysis following each manufacturer protocol. Complete Application Note available at www.mpbio.com/7x.

7X-O-Matic - This low-foaming formulation has been optimized for use in automatic washing machines or in procedures where the solution will be agitated during cleaning, such as ultrasonic cleaners. It is also effective at temperatures ranging from ambient to 85°C (185°F).

Name	Pack Size	Cat. No.	Price
7X-O-Matic® Cleaning Solution	1 gal	97667493	\$51.05
7X-O-Matic® Cleaning Solution	4 x 1 gal	97667494	\$159.95
7X-O-Matic® Cleaning Solution	5 gal	97667495	\$159.95
7X-O-Matic® Ready to Use 5% Cleaning Solution*	1 gal	97668493	\$39.55

*Our newest formulation - provided at a 5% working solution with a hand pump dispenser. Dispense directly into a vessel requiring cleaning.

ES 7X-O-Matic® Cleaning Solution - The "Environmentally Safe" (ES) version of 7X-O-Matic® concentrate is low-foaming and used in the same manner as 7X-O-Matic® detergent for automatic washers or other applications where agitation is used.

Name	Pack Size	Cat. No.	Price
ES 7X™ Cleaning Solution	1 gal	97667193	\$35.25
ES 7X™ Cleaning Solution	4 x 1 gal	97667194	\$103.20
ES 7X™ Cleaning Solution	5 gal	97667195	\$103.20
ES 7X™ Cleaning Solution	55 gal	97667198	\$973.00
ES 7X™ Ready to Use 5% Cleaning Solution*	1 gal	97668193	\$26.55

*Our newest formulation - provided at a 5% working solution with a hand pump dispenser. Dispense directly into a vessel requiring cleaning.

ES 7X-O-Matic® Cleaning Solution - The "Environmentally Safe" (ES) version of 7X-O-Matic® concentrate is low-foaming and used in the same manner as 7X-O-Matic® detergent for automatic washers or other applications where agitation is used.

Name	Pack Size	Cat. No.	Price
ES 7X-O-Matic® Cleaning Solution	1 gal	97667593	\$60.20
ES 7X-O-Matic® Cleaning Solution	4 x 1 gal	97667594	\$177.75
ES 7X-O-Matic® Cleaning Solution	5 gal	97667595	\$190.20



5. Products at a Glance

Cleaning Application	7X™	ES 7X™	7X-O-Matic®	ES 7X-O-Matic®	Dekasol®
Cell Culture/Culture Media Breweries	●	●	●	●	
Ceramic	●	●	●	●	
Glass	●	●	●	●	
Machine/Sprayers (Low or controlled foaming)			●	●	
Metal Equipment	●	●	●	●	
Phosphate Analysis Equipment		●		●	
Plastic	●	●	●	●	
Porcelain	●	●	●	●	
Quartz	●	●	●	●	
Radioactive Decontamination					●
Stainless Steel (Process Equipment)	●	●	●	●	

Specialty Cleaners		
Radioactive Decontamination	RNase/DNA Remover	Bench Top Cleaner
Dekasol® Solution	RNase Erase®	Oxy Spray Cleaner
Dekasol® Towelettes	DNA-Erase™	Absorbent Paper
	DNA OFF™	
	Water, Dnase, RNase-Free	