

## A Guide to Decontamination / PerkinElmer Cleaners

Whether you're removing radioactive residues or RNase contamination, stubborn resins or dried blood, PerkinElmer decontaminants make the job fast, easy and economical. We offer a complete line of contamination removers to meet your diverse cleaning needs.

### Skin Decontamination

#### Soap and water

Wet skin and apply soap. Work up a good lather and keep lather wet. Work lather into contamination area by rubbing gently for two to three minutes. Apply water frequently. Rinse area with tepid water. Repeat procedure several times if necessary, using a soft brush to gently scrub the area. Discontinue before skin becomes abraded or sensitive.

#### Abrasive or powdered hand soap

See "soap and water" procedure, but use light pressure to avoid scratching or eroding the skin.

#### Detergent (powdered) and corn meal, 50:50

Make into a paste. Use with additional water and a mild scrubbing action.

#### Sweating

Place hand in plastic glove and tape shut. Place in warm area until sweating is profuse. Remove glove promptly and wash immediately using standard techniques.

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### **Non-porous Surface Decontamination : PerkinElmer Count-Off™, Pico-Kleen N and disinfectant solutions**

All purpose laboratory cleaners and radioactivity-decontaminants. Use as a soak or scrub.

#### **Count-Off™ Liquid Concentrate**

Fast, effective, ideal all-purpose decontaminant:

- superior decontamination
- 2% working solution extremely effective for the removal of radioactivity from the surfaces of laboratory glassware and equipment
- None of the toxic vapors associated with chromic acid
- non-reactive emulsifiers
- efficient substrate removal

#### General Information

COUNT-OFF Liquid Concentrate cleans up even the most persistent left-overs:

- radioactive residues
- stopcock and vacuum greases
- lanolin
- petroleum jelly
- dried blood and serum
- fatty and amino acids
- protein complexes
- polymer films and other stubborn residues

At PerkinElmer, NEN's radiochemical synthesis laboratories constantly evaluate decontaminant solutions. Our corporate Analytical Laboratory compared COUNT-OFF Liquid Concentrate with four widely used decontaminant solutions under strict controls, obtaining the following results:

**TEST # 1: FASTEST ACTION***Most effective fast-action decontamination (one hour at 50°C)**COUNT-OFF surpasses all others in overall capacity to remove residual activity.*

DECONTAMINANT AT RECOMMENDED CONCENTRATION	% Activity Remaining After One Hour At 50°C								TOTAL POINTS	TOTAL RATING
	<sup>3</sup> H AMINO ACID MIXTURE		<sup>14</sup> C AMINO ACID MIXTURE		<sup>32</sup> P PHOSPHORIC ACID		<sup>125</sup> I BOVINE SERUM ALBUMIN			
COUNT-OFF™ 2.0% solution	0.24	#1	0.11	#1	<0.01	#1	0.05	#1	4	#1
PRODUCT A 2.5% solution	1.92	#5	8.22	#5	0.09	#5	15.0	#5	20	#5
PRODUCT B 2.0% solution	0.34	#2	1.23	#2	<0.01	#1	0.13	#2	7	#2
PRODUCT C 0.75% solution	0.50	#4	2.24	#4	<0.01	#1	0.23	#4	13	#4
PRODUCT D 2.0% solution	0.36	#3	1.79	#3	<0.01	#1	0.13	#2	9	#3

**TEST # 2: MOST EFFECTIVE DECONTAMINANT***Most effective 24-hour decontamination (at room temperature)**Tested at ambient temperatures, COUNT-OFF outperformed all other products.*

DECONTAMINANT AT RECOMMENDED CONCENTRATION	% Activity Remaining After 24 Hours At Room Temperature								TOTAL POINTS	TOTAL RATING
	<sup>3</sup> H AMINO ACID MIXTURE		<sup>14</sup> C AMINO ACID MIXTURE		<sup>32</sup> P PHOSPHORIC ACID		<sup>125</sup> I BOVINE SERUM ALBUMIN			
COUNT-OFF™ 2.0% solution	0.13	#1	0.29	#1	<0.01	#1	0.01	#1	4	#1
PRODUCT A 2.5% solution	1.95	#5	7.89	#5	0.06	#5	7.5	#5	20	#5
PRODUCT B 2.0% solution	0.35	#2	2.63	#4	<0.01	#1	0.17	#2	9	#2
PRODUCT C 0.75% solution	0.45	#4	1.96	#3	<0.01	#1	0.30	#4	11	#4
PRODUCT D 2.0% solution	0.48	#3	1.56	#2	<0.01	#1	0.26	#3	10	#3

**Safe and stable**

COUNT-OFF is safe and stable under extreme temperature fluctuations (from -50°C to 150°C). At 2% concentration, the COUNT-OFF solution is a mild reagent with alkalinity equivalent to a 10<sup>-2</sup> molar sodium hydroxide solution, mild to the skin. Moreover, COUNT-OFF solution will not produce toxic gases from substrates containing <sup>14</sup>C, <sup>131</sup>I, <sup>35</sup>S or <sup>36</sup>Cl, known to be produced by strongly acidic cleaners such as chromic acid.

**CAUTION**

*As with all slightly alkaline cleaning solutions, COUNT-OFF, diluted for normal use, can attack amphoteric metals such as aluminum and zinc. These surfaces should either be cleaned with utmost care to avoid possible etching or cleaned with a different milder surfactant system (e.g. Pico-Kleen N).*

**Directions for use**

For most applications, COUNT-OFF Liquid Concentrate should be diluted to 1:49 (COUNT-OFF : warm water). Tests show that residual <sup>14</sup>C, <sup>3</sup>H, and <sup>32</sup>P activity on glassware is typically reduced to 0.3% or less of its original level following a 24-hour room temperature soak in 2% COUNT-OFF and rinsing. More stubborn substances, for example, those containing <sup>59</sup>Fe and <sup>131</sup>I, respond to soaking in a 5% COUNT-OFF concentration for two hours at 50°C. Faster decontamination can be achieved by simply increasing the COUNT-OFF concentration and/or raising the solution temperature. Ultrasonic or manual agitation will greatly accelerate the decontamination process.

### Ordering Information

6NE9422 for 1 x 2.5L

6NE9427 for 4 x 2.5L

Store ambient.

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### Count-Off Aerosol Spray Surface Cleaner

Safety essential in the lab:

- foam traps and confines spills, preventing spreading of contamination
- ideal for hard-to-reach corners
- non-corrosive, safe for all laboratory surfaces

### General Information

COUNT-OFF™ Spray Surface Cleaner makes quick work of decontaminating small radioactive spills. Foaming action traps and suspends radioactive particles for easy wiping away, making cleanup easy and reducing the likelihood of contamination to hands and clothing. COUNT-OFF Spray will effectively remove both ionic and non-polar radioactivity as well as stubborn substances like grease, resins, blood, and wax – even from rough surfaces.

COUNT-OFF Aerosol Spray Surface Cleaner is perfect for small or difficult-to-reach spots like instrument housings, hood corners, centrifuge cups and heads, and LSC counter mechanisms. It is equally useful in routine decontamination of exposed laboratory surfaces, including benches, shields, and appliances. Non-corrosive COUNT-OFF Surface Cleaner can be used with confidence on glass, metal, wood, painted and plastic laboratory and instrumentation surfaces.

### Ordering Information

6NE942T for 6 x 22oz. (650 mL) cans

Store ambient.

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### Pico-Kleen N

PICO-KLEEN N is a highly versatile, all-purpose laboratory cleaner as well as a very effective radioactivity-decontaminant. It is specifically formulated and therefore recommended for cleaning and decontaminating of non-ferrous metals, such as aluminum or zinc. PICO-KLEEN N removes difficult soils like blood and plasma, proteins, resins, silicone greases, fatty components, oils etc. from all kinds of laboratory metals and glassware. In diluted form (5%), PICO-KLEEN N is a gentle neutral reagent and is relatively safe to the skin (pH=7,5 for 5%).

### General Information

Biodegradable, concentrated all purpose laboratory cleaner and radioactivity-decontaminant.

- Highly concentrated, neutral solution
- Compatible with alkali-sensitive metals
- Biodegradable

### Directions for use

Shake PICO-KLEEN N liquid concentrate prior to dilution. For general cleaning purposes prepare a 5% dilution by adding 500 ml PICO-KLEEN N to 10 liters of tap water. Immerse all surfaces of object(s) to be cleaned completely for 2-24 hours at ambient temperature. Increased temperature and/or the use of ultrasonic agitation drastically reduces soaking time. Rinse well with deionized water. For more stubborn contamination, increase concentration to 10-20%.

### Ordering Information

Catalog # 6013819 for 2 x 5L

Store in the unopened container, protected from direct sunlight, at or slightly below room temperature.

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## Amphyl/Lysol (Disinfectant)

Liquid infection control cleaner that disinfects and deodorizes in one operation hard nonporous, environmental surfaces that may be contaminated with pathogenic bacteria, fungi and viruses. More details on mechanism of action for disinfectant antimicrobial agents and germicidal-, virucidal-, fungicidal-, fungistatic- activities upon request.

### Directions for use (Disinfectant Concentrate)

This disinfectant is a concentrate. Always dilute in accordance to label instructions: Used as a 0.5% solution for lightly soiled areas and as a 1.0% solution for more difficult soil conditions.

Especially dedicated to the cleaning of the PerkinElmer FilterMate Cell Harvester:

*Be sure to flush the system every day after harvesting your last samples. Use the flushing procedure to remove any salts, corrosives or other deposits that collect in the tubing. To clean significant deposits from the harvester fluid path, refer to the Cleaning Procedure section in the instrument manual.*

### Directions for use (Foaming Disinfectant)

**FOR CLEANING:** Shake well before using. Point button to mark on rim. Hold can 6 to 8 inches from surface to be cleaned. Press button and cover area lightly with white foam. After a few seconds, wipe off with clean cloth or sponge. For stubborn stains or heavily soiled areas, allow foam to remain longer on surface before wiping.

**FOR DISINFECTING HARD NONPOROUS SURFACES:** If surfaces are visibly dirty, follow cleaning directions first; then spray on surface until thoroughly covered with foam. Leave for 10 minutes. Wipe with damp cloth or sponge.

Use on surfaces such as fiberglass, synthetic marble, tile, plastic and vinyl.  
For other surfaces spot test in an inconspicuous area before use.

### Ordering Information

Catalog # 6000652 DISINFECTANT CONCENTRATE

Catalog # 8590412 DISINFECTANT, LYSOL FOAM AEROSOL

Store in original container in secure areas inaccessible to small children and pets. Keep container securely closed when not in use. Do not reuse empty container. Replace cap and discard in trash. Do not incinerate or puncture.

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## RNase Contamination: PerkinElmer AbSolve™ RNase Decontaminant Concentrate

Fast, easy and inexpensive method for removing serious RNase or DNA contamination from plastic and glass labware (autoclaving does not destroy DNA).

Ribonuclease (RNase) is an enzyme of ubiquitous nature which destroys RNA. Therefore manipulations involving RNA must be done in a manner which minimizes contact with this protein. A persistent source of RNase contamination is laboratory glass or plasticware which has been in contact with solutions containing RNase. As simple washing and drying is not sufficient to insure the complete absence of RNase, either disposable plasticware or glassware baked at 250°C for four hours must be used for experiments.

With the introduction of AbSolve™, removal of RNase becomes both easy and inexpensive. In-house experiments indicate that AbSolve™ is able to remove serious RNase contamination and have absolutely no effect on any subsequent reactions involving RNA.

AbSolve™ is also ideal for prewashing plastic tubes for polymerase chain reactions (PCR). The PCR DNA amplification technique is a very sensitive procedure for detecting single copies of DNA molecules. AbSolve™ prevents DNA contamination of storage and reaction vessels from exogenous sources.

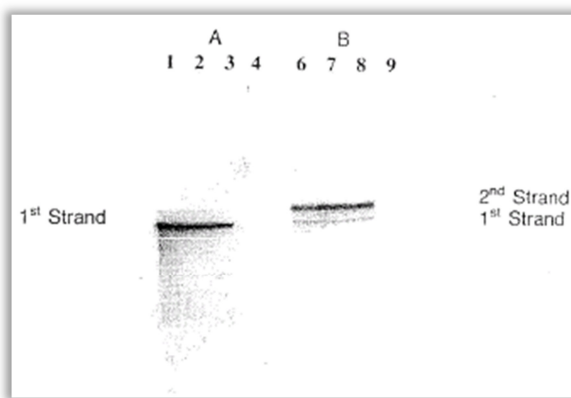
In addition, AbSolve™ can be useful for the cleaning of glassware to be used in electrophoresis. Because it is easily removed by rinsing, it leaves no residue to interfere with gel polymerization and/or silver staining.

### General Information

Manipulations involving RNA must minimize contamination with ribonuclease (RNase). One persistent source of RNase contamination is from glassware or plastics that have been in contact with solutions containing RNase. Simple washing and drying is not sufficient to remove all traces of RNase activity. Previously, the only way to insure the complete absence of RNase has been to use disposable plasticware or to bake the glassware at 250°C for four or more hours. Unfortunately, this heating process also leads to a weakening of the glass resulting in the occasional failure of glass centrifuge tubes during centrifugation. Now, with AbSolve, plastic and glassware can be simply soaked for 30 minutes, rinsed and used without fear of RNase contamination. And just as important, this process does not inhibit any subsequent reactions involving the RNA.

To show the ease and complete removal of ribonuclease with AbSolve, plastic and glassware were contaminated with a solution of RNase (2.5 units). After the tubes had dried, the tubes were decontaminated by being immersed in a solution of 2% AbSolve in deionized water and allowed to stand for 30 minutes at room temperature. The glassware and plastic were rinsed 3 times in deionized water and used.

The experiment shown below displays the first- and second-strand synthesis of cDNA starting with BMV mRNA. The data clearly demonstrate that AbSolve successfully removed the RNase contamination. Lanes 3 and 8 –where the tubes were treated with AbSolve– show that first- and second-strand synthesis occurs to the same extent as in the tubes without any RNase added (lanes 2 and 7). Lanes 4 and 9 demonstrate that the RNA was completely destroyed by the RNase contamination.



**Effect of AbSolve™ on First- and Second-Strand Synthesis Using BMV mRNA.** One  $\mu\text{g}$  of mRNA was used per reaction. The DNA was separated on a 6% polyacrylamide sequencing gel. A) First-strand synthesis using reverse transcriptase and [ $^{32}\text{P}$ ]dCTP – B) Second-strand synthesis using DNA polymerase I. Lanes 1&6: Untreated glass tubes. Lanes 2&7: Tubes treated with AbSolve and rinsed. Lanes 3&8: RNase-contaminated tubes treated with AbSolve and rinsed. Lanes 4&9: RNase-contaminated and rinsed tubes.

The data shown was done with glass tubes. Identical results were obtained with plastic centrifuge tubes.

### Directions for use

Plastic and glassware are simply soaked in a 2% solution of AbSolve™ for 30 minutes and rinsed. These laboratory materials can then be used without fear of RNase contamination.

AbSolve™ is non-abrasive, does not etch glass, does not contain strong acids or emit toxic fumes.

### Ordering Information

Catalog # 6NE9711 for 1L