



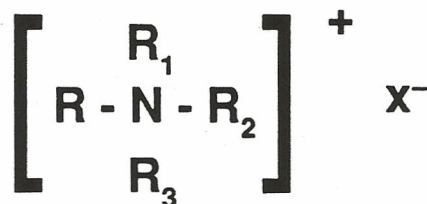
**MARIL PRODUCTS, INC.**

Technical Data

## Control III Laboratory Germicide

CONTROL III E.P.A. No. 55364-4 is a highly refined mixture of N-alkyl dimethyl benzyl ammonium chlorides and N-alkyl dimethyl ethyl benzyl ammonium chlorides.

The quaternary ammonium salts of long chain alkyl, or heterocyclic groups (obtained from fatty acids) make up the group of chemicals known as cationic surface-active quaternary ammonium disinfectants, and have the following basic form:



When R represents the lipophilic group (long chain alkyl or polycyclic groups),  $R_{1,3}$  represents "H", alkyl, azyl, or hetero cyclic groups or residues. "X" represents a negative ion with a negative one valence, and "N" represents the nitrogen.

## CHEMICAL AND PHYSICAL PROPERTIES

### Active Ingredients:

N-alkyl (60% C <sub>14</sub> , 30% C <sub>16</sub> , 5% C <sub>18</sub> , 5% C <sub>12</sub> )	
dimethyl benzyl ammonium chlorides	0.0781%
N-alkyl (68% C <sub>12</sub> , 32% C <sub>14</sub> ) dimethyl ethyl	
benzyl ammonium chlorides.	0.0781%
Inert ingredients:	99.8438%
	100.0000%

**GENERAL DESCRIPTION:** CONTROL III is an almost clear liquid having a slight, but pleasant odor. It mixes easily in water and does not separate.

**SURFACE-ACTIVITY:** CONTROL III has an inherently high wetting and penetrating action that provides a deep and intimate contact between the antiseptic-germicide and any micro-organisms, dirt, etc.

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<b>SOLUBILITY:</b>	CONTROL III is soluble in water, alcohol and acetone. It is partially soluble in benzene and insoluble in ether.
<b>SUBSTANTIVITY:</b>	CONTROL III aqueous solutions are readily absorbed by such textiles as cotton, wool, viscose and acetone rayon. It is so strongly retained by these fibers that bacteriostatic activity is evident even after washing or cleaning.
<b>STABILITY &amp; SHELF LIFE:</b>	CONTROL III is a highly stable product that retains its antiseptic and germicidal properties for long periods—even years, when it is stored under normal conditions.
<b>ACTIVITY:</b>	0.1562%
<b>SPECIFIC GRAVITY:</b>	CONTROL III at 20°C (pycnometer) is rated at a specific gravity of 0.998.
<b>PH:</b>	The pH rating of CONTROL III aqueous solutions fall within the range of 10.25 - 10.75. CONTROL III is cationic in its reaction to surface throughout the entire pH range. It maintains its bactericidal effect throughout the pH range.
<b>HARDNESS TOLERANCE:</b>	CONTROL III is stable and effective in waters containing up to 750 ppm hardness calculated as $\text{CaCO}_3$ as determined by the Chambers Method Hardness Test. This fulfills the requirements of appendix F, as revised March 12, 1956, of the Milk Ordinance and Code 1953—Recommendations of the U.S. Public Health Service.
<b>COMPATIBILITIES AND INCOMPATIBILITIES:</b>	CONTROL III is compatible with the non-ionic surface-active agents, i.e. ethylene oxide, condensates of alkylphenols and high activity fatty acid alkanolamides. It is also compatible with other cationic materials and with certain dye stuffs, essential oils, inorganic and organic salts, alcohol acids and alkalis.

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CONTROL III is incompatible with soaps, sulfated or sulfonated fatty alcohols and oils and certain other anionic or surface-active agents. It should never be mixed with these materials. Care should also be taken to fully rinse and remove any soap trace from any surface before applying CONTROL III antisepticgermicide.

The compatibility and incompatibility of CONTROL III with commonly used hospital substances are listed as follows:

### COMPATIBLE:

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Acriflavine	Glycerin 5% to 15%	Pontocain HCl
Alcohol	Homatropine 5%	Procaïn HCl
Benzocaine	Hydrazone hydrate	Resorcin
Boroglycerine	0.1% to 0.5%	(cloudy when mixed)
Camphor	Lime Water U.S.P.	Rose Water
Carbachol	Mercurial Salts 1%	Scopolamine
Chlorobutanol 1:1500	Methylene blue	Sodium bicard and
Cobefrin	Methyparaben	Phosphate
Cocaine	Natural Rubber	Sodium carbonate and
Cresol	Neo-Synephrine	Sodium Nitrate
Dionin	Novocain	Sulfadiazine sodium
Eosin	Oil of Sassafras	Sulfanilamide
Ephedrine HCl	1.5% to 2.5%	Terramycin
Epinephrine	Penicillin	Trisodium phosphate
Eserine sulfate	Phenol	Urea
(not salicylate salt)	Pilocarpine	Urethane
Formaldehyde 1%	(2% solution or less)	Zinc chloride, up to and
Fuchsin	Polyethylene glycol	including 1%

### INCOMPATIBLE

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Aerosol OT	Neoprotonsil	Sodium citrate & tartrate
Aluminum	Pantopon	Sodium lauryl sulfate
Argyrol	Peroxide	Sulfapyridine
Benzyl ephedrine	Physostigmine	Sulfathiazole
Boric acid 5%	Pilocarpine nitrate	Sulfathiazole sodium
Caramel	(3% or more)	Synthetic rubber (some)
Citric acid	Pine oil	Tartaric acid
Ethylparaben	Potassium iodide	Yellow oxide of mercury
Fluorescein sodium	Potassium permanganate	Zinc oxide
Iodine	Saponin 0.1% to 0.5%	Zinc peroxide
Kaoline	Silicates	Zinc sulfate
Lanoline	Silver salts	

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## Control III Laboratory Germicide

**CORROSION:** DAMAGE TO MATERIALS; CONTROL III in use dilutions, will not damage or mar natural rubber, glass, painted or plastic surfaces. It is non-corrosive to all metals in normally used applications for swabbing, mopping and rinsing.

CONTROL III is non-flammable and non-explosive.

### BACTERIOLOGICAL PROPERTIES

**PHENOL COEFFICIENTS:** CONTROL III has a high bactericidal activity that has been proved according to Methods of Analyses, AOAC, 14th. Ed., 1984 4.007; PG.67. This is attested by its phenol coefficients for various pathogenic micro-organisms, as shown in the following table:

#### PHENOL COEFFICIENTS (100% activity basis)

Organisms	37°C
Staphylococcus aureus ATCC #6538	1150
Salmonella typhosa ATCC #6539	755
Escherichia coli ATCC #4352	583
Streptococcus faecalis ATCC #10541	2143
Pseudomonas aeruginosa ATCC #15442	329

**BACTERICIDAL ACTIVITY:** Bactericidal efficiency of CONTROL III against various types of bacteria determined by the prescribed AOAC Phenol Coefficient Test Method is given in the following table. Killing dilutions are the dilutions which kill an organism in a 10 minute contact period.

#### TYPICAL BACTERICIDAL EFFICIENCY TESTS (100% activity basis)

Organism	37°C
Staphylococcus aureus ATCC #6538	1:69000
Salmonella typhosa ATCC #6539	1:68000
Escherichia coli ATCC #4352	1:35000
Streptococcus faecalis ATCC #10541	1:150000
Pseudomonas aeruginosa ATCC #15442	1:28000
Bacillus subtilis ATCC #19659	1:35000
Proteus vulgaris ATCC #8427	1:43000

As a disinfectant of clinical thermometers contaminated with *hominis*, *corynebacterium diphtheriae* and the hemolytic strains of *staphylococcus* and *streptococcus*, CONTROL III has proven to be highly effective.

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### ANTIMICROBIAL ACTIVITY of CONTROL III (100% active basis).

FUNGI		Minimum Inhibitory levels-ppm
Aspergillus niger	ATCC #6275	50
	ATCC #10535	15
	IPC #144	15
Chaetomium glabosum	ATCC #6205	5
Penicillium crustosum	ATCC #10430	50
Penicillium funiculosum	ATCC #10430	15
Penicillium luteum	ATCC #10466	5
Trichophyton mentagraphytes ATCC #9533 (interdigitale) #640 strain		2
YEAST		
Candida albicans	ATCC #10231	5
Pityrosporum Ovale	ATCC #14521	2

**BACTERICIDAL ACTIVITY:** By use Dilution Method: Methods of Analysis,  
AOAC, 11th. Ed., 1970, Pg. 61

### COMPLETE KILL AGAINST:

Staphylococcus aureus ATCC #6538  
Salmonella choleraesuis ATCC #10708  
Pseudomonas aeruginosa PRD-10 (ATCC #15442)

### AT:

450ppm  
400ppm  
550ppm

## Control III Laboratory Germicide

**RESIDUAL BACTERIOSTASIS:** CONTROL III has an affinity for most materials and hard surfaces and also possesses great lasting properties. When CONTROL III is used, an almost imperceptible residual anti-bacterial film is left on the surface. This film prevents and inhibits the growth of micro-organisms over a period of several days.

### TEMPERATURE AND

**BACTERICIDAL ACTIVITY:** CONTROL III is effective in either hot or cold water. Its effectiveness however, increases with a higher water temperature.

## TOXICOLOGICAL PROPERTIES

**ACUTE ORAL TOXICITY:** LD<sub>50</sub> of CONTROL III on white rats is 3625 mg/kg.

**IRRITATION & SENSITIZATION:** CONTROL III at recommended use concentrations, up to 1000 ppm is neither a primary irritant nor a sensitizing agent.