Disinfectant for the Life Sciences industry including Pharmaceutical and Cosmetic surfaces, Oxonia Active LS effectively kills Staphylococcus aureus (ATCC 6538), Burkholderia cepacia (ATCC 25416), and Salmonella enterica (ATCC 10708) that can adversely affect shelf-life. See directions for use for list of organisms.

Helps protect processing equipment investment - use solutions non-corrosive to 304, 316 stainless steel and aluminum surfaces when used at concentrations listed on the product label.

Compatible with most plastic and rubber materials used in processing operations.

Effective against environmental microorganisms that can adversely affect shelf-life.

Non-foaming formulation minimizes CIP cycle time and improves CIP efficiency.

When used according to label directions for use, provides acidified rinse and sanitizer in one step - no post-rinse required.

Low phosphorous formulation minimizes phosphate-related effluent fees.

Active ingredients rapidly break down after use into water, oxygen and acetic acid.

Non-foaming formulation minimizes CIP cycle time and improves CIP efficiency.

Why Oxonia Active LS?

- Disinfectant for the Life Sciences industry including Pharmaceutical and Cosmetic surfaces, Oxonia Active LS effectively kills Staphylococcus aureus (ATCC 6538), Burkholderia cepacia (ATCC 25416), and Salmonella enterica (ATCC 10708).
- Penetrates biofilms, killing the bacteria Pseudomonas aeruginosa and Staphylococcus aureus living there.
- pH range tolerant - effective sanitizing activity at acidic to neutral pH.

- Helps protect processing equipment investment - use solutions non-corrosive to 304, 316 stainless steel and aluminum surfaces when used at concentrations listed on the product label.
- Compatible with most plastic and rubber materials used in processing operations when used according to label directions for use.
- Effective against environmental microorganisms that can adversely affect shelf-life. See directions for use for list of organisms.

SAVES TIME AND MONEY

- Non-foaming formulation minimizes CIP cycle time and improves CIP efficiency.

SUBJECT TO INCOMING GOODS CONTROL

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Colorless</th>
<th>Density</th>
<th>1.12 kg/L - 9.33 LB/GAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>1% Solution pH 2.5</td>
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<td></td>
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</table>

PROPERTIES

Concentrate

<table>
<thead>
<tr>
<th>Storage Stability</th>
<th>14°F - 104°F / -10°C - 40°C</th>
<th>Frost Resistance</th>
<th>Freeze/Thaw Stable</th>
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</table>

Application Solution

<table>
<thead>
<tr>
<th>pH</th>
<th>pH 1% Solution 2.5 / pH 100% Solution &lt;1</th>
<th>Foam Behaviour</th>
<th>No to low foam</th>
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</thead>
<tbody>
<tr>
<td>Conductivity</td>
<td>--</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Material Compatibility

<table>
<thead>
<tr>
<th>Metals</th>
<th>Plastics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use solutions non-corrosive to 304, 316 stainless steel and aluminum surfaces when used at concentrations listed on the product label.</td>
<td>Compatible with most plastic and rubber materials used in processing operations.</td>
</tr>
</tbody>
</table>
APPLICATION

Mode of Application
Due to EPA claims, please consult product label for all approved directions for use. Consult your Ecolab Representative for specific use instructions and recommended dispensing equipment. For cautionary and first aid information, consult the Safety Data Sheet (SDS) or product label.

MONITORING

Titration
Test Kit 322 - Oxidizer Test Kit

ECOLOGICAL EVALUATION

Evaluation
OMRI Certified
- Excellently biodegradable
- The antimicrobial active substances are already decomposed during application and in sewage
- Chlorine-free, no production of chlororganic compounds

P-content
Formula ingredients contain not more than 0.3% Phosphorus, at the concentration. Please refer to the label for use concentrations.

SAFETY

The relevant Hazard identifications of Oxonia Active LS are given in the Safety Data Sheet available at safetydata.ecolab.com. If any questions arise in this context please contact your Ecolab representative.

PRODUCT ORDERING INFORMATION

<table>
<thead>
<tr>
<th>UNIT OF SALE</th>
<th>LANGUAGES</th>
<th>ORDER CODE</th>
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</thead>
<tbody>
<tr>
<td>4.5 GAL</td>
<td>EN, ES, FR</td>
<td>6600487</td>
</tr>
<tr>
<td>50 GAL</td>
<td>EN, ES, FR</td>
<td>6600386</td>
</tr>
<tr>
<td>300 GAL</td>
<td>EN, ES, FR</td>
<td>6600488</td>
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</table>
Oxonia Active LS

STERILANT AND DISINFECTANT WITH SPORICIDAL ACTIVITY FOR THE COSMETIC, DIETARY SUPPLEMENT, AND PHARMACEUTICAL INDUSTRIES

KEEP OUT OF REACH OF CHILDREN

DANGER

ENVIRONMENTAL HAZARDS: This pesticide is toxic to birds, fish, and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

SANITIZATION

Oxonia Active LS acid sanitizer is recommended for use on hard, non-porous, pre-cleaned surfaces such as equipment, pipelines, tanks, vats, fillers, evaporators, pasteurizers, milling equipment, granulators, asptic equipment and associated equipment in dietary supplement manufacturing, cosmetics manufacturing, pharmaceutical manufacturing and food processing plants. This product is effective as a sanitizer when solution is prepared in water of up to 500 ppm hardness as CaCO3.

NOTE: FOR MECHANICAL OPERATIONS prepared use solution may not be reused for sanitizing but may be reused for other purposes such as cleaning. FOR MANUAL OPERATIONS fresh sanitizing solutions must be prepared at least daily or more often if the solution becomes diluted or soiled.

SANITIZING FOOD CONTACT SURFACES

Prior to sanitizing, remove gross soil particles and then wash with a detergent solution as a foam using recommended equipment such as a Super Foamer. Apply Oxonia Active LS as a 0.5 - 2.0% (5 - 20 fl. oz. per 8 gallons of water) solution as a foam using recommended equipment such as a Super Foamer. Liquid K. For example, in four gallons of water, add 1 fl. oz. of Oxonia Active LS to 8 gal water to make a 0.25% v/v (2 fl. oz. per 8 gallons of water). At this concentration the product is effective against Staphylococcus aureus (ATCC 6538), Klebsiella aerogenes (formerly known as Enterobacter aerogenes (ATCC 13084), Escherichia coli (ATCC 1029), Salmonella typhimurium (ATCC 13313). Pseudomonas aeruginosa (ATCC 15442), Burkholderia cepacia (ATCC 25461), and Saccharomyces cerevisiae (ATCC 834). It is also effective against Pediococcus damnosus (ATCC 25248) and Lactobacillus malefermentans (ATCC 1305). All surfaces must be rinsed with water of suitable quality. Prepare fresh solution when solution is prepared in water of up to 500 ppm hardness as CaCO3.

A pre-cleaning step is required for visibly soiled areas. Apply diluted solution as a 0.5 - 2.0% v/v (5 - 20 fl. oz. per 8 gallons of water) solution at 25°C (77ºF) for a minimum contact time of 5 minutes. No rinse necessary.

ELEVATED TEMPERATURE SANITIZING FOR FOOD CONTACT SURFACES

For sanitization of hard, non-porous surfaces of equipment in food and dietary supplements processing plants, clean and rinse equipment thoroughly. At a temperature of 49°C (120°F), Oxonia Active LS is an effective sanitizer for hard, non-porous food contact surfaces at a concentration of 0.20% - 0.28% v/v (0.1% - 1.4 fl. oz. Oxonia Active LS to 4 gallons of water). At this dilution Oxonia Active LS is effective against Staphylococcus aureus (ATCC 6538) and Escherichia coli (ATCC 1029). All surfaces must be exposed to the sterilizing solution for a period of not less than 1 minute. Allow equipment to drain thoroughly. No rinse necessary.

FINAL CONTAINER SANITIZING

Oxonia Active LS may be used as a final sanitizing step for returnable and non-returnable bottles, containers (i.e. glass or PET), and/or closures at a dilution rate of 1.0 - 1.4 fl. oz. Oxonia Active LS per 4 gallons of water (2.0 - 2.8 mL/L or 0.20% - 0.28% v/v). At this dilution Oxonia Active LS is effective against Staphylococcus aureus (ATCC 6538), Escherichia coli (ATCC 1029), Listeria monocytogenes (ATCC 7644), Salmonella typhimurium (ATCC 13313), Pseudomonas aeruginosa (ATCC 15442) and Vibrio cholerae (ATCC 26583). All surfaces must be exposed to the sanitizing solution for a period of not less than 1 minute. Drain thoroughly and allow to air dry. No rinse necessary.

SANITIZE PRE-CLEANED OR NEW RETURNABLE OR NON-RETURNABLE CONTAINERS

To sanitize pre-cleaned or new returnable or non-returnable containers and/or closures for processing, apply Oxonia Active LS at a concentration of 1.0% - 4.0% (0.0 - 0.4 fl. oz. per 8 gallons of water) at a temperature of 40° - 60°C (104° - 140°F) for at least 7 seconds. At these conditions, Oxonia Active LS is effective against Staphylococcus aureus (ATCC 6538), Escherichia coli (ATCC 1029), Salmonella typhimurium (ATCC 13313), Pseudomonas aeruginosa (ATCC 15442), Vibrio cholerae (ATCC 26583), Lactobacillus malefermentans (ATCC 1305) and Saccharomyces cerevisiae (ATCC 834). After thorough draining, rinse interior container surfaces with a potable water rinse. This product may be patented:

www.ecolab.com/patents

This product is effective against the following when used at 20°C (68°F) in water:

- Pseudomonas aeruginosa (ATCC 15442)
- Clostridium sporogenes (ATCC 10845)
- Clostridium perfringens (ATCC 13124)
- Staphylococcus aureus (ATCC 6538)
- Enterobacter aerogenes (ATCC 13084)
- Escherichia coli (ATCC 1029)
- Salmonella typhimurium (ATCC 13313)
- Pseudomonas aeruginosa (ATCC 15442)
- Burkholderia cepacia (ATCC 25461)
- Saccharomyces cerevisiae (ATCC 834)
- Pediococcus damnosus (ATCC 25248)
gallons of water) use solution at 24°C (75°F) for a minimum contact time of 5 minutes. After treatment with Oxonia Active LS solution, rinse membranes thoroughly with a disinfected water rinse free of pathogenic bacteria. Consult membrane manufacturer for membrane compatibility guidelines. Conduct membrane treatment while the membrane system is off-line.

**ANTIMICROBIAL TREATMENT OF PROCESSING MEMBRANES**

To reduce the number of the spoilage organism Pseudomonas aeruginosa (ATCC 25416), Sphingomonas paucimobilis (ATCC 11305), Saccharomyces cerevisiae (ATCC 10414), Staphylococcus aureus (ATCC 25873). It is also effective against Salmonella typhimurium (ATCC 13311), Escherichia coli (ATCC 6538), Staphylococcus aureus (ATCC 6538), Lactobacillus malefermentans (ATCC 11305), and Aureobacterium aurantiacum (ATCC 9358).

**FOAM SANITIZING NON-FOOD CONTACT SURFACES**

Lactobacillus malefermentans (ATCC 834). It is also effective against Salmonella typhimurium (ATCC 13311), Escherichia coli (ATCC 6538), Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa (ATCC 6538), and Staphylococcus aureus (ATCC 13311), Escherichia coli (formerly known as Klebsiella aerogenes) (ATCC 11305). When applied to food or product contact surfaces with sterile water. This product is an effective sporicide against Bacillus subtilis (ATCC 6633) and Candida parapsilosis (ATCC 22019) used per the label directions.

**FOAM SANITIZING NON-FOOD CONTACT SURFACES**

Pediococcus damnosus (ATCC 13311), Escherichia coli (ATCC 6538), Staphylococcus aureus (ATCC 6538), and Staphylococcus aureus (ATCC 11305). Use immersion, coarse spray or circulation techniques as appropriate to the equipment. All surfaces must be exposed to the sterilizing solution for a minimum exposure time of 5 minutes. For extreme fouling situations, use up to 10.2 fl. oz. of Oxonia Active LS per 8 gallons of water (10,000 ppm v/v). Conduct membrane treatment while processing is not in operation. After treatment with Oxonia Active LS solution, rinse membranes thoroughly with a disinfected water rinse free of pathogenic bacteria. Consult membrane manufacturer for membrane compatibility guidelines.

**REVERSE OSMOSIS AND NANOFLTRATION MEMBRANES**

To reduce the number of the spoilage organisms Pseudomonas aeruginosa (ATCC 25416) and Salmonella enterica (ATCC 10708) at 0.4% - 1.0% (2 fl. oz. / 4 gallons to 5 fl. oz. / 4 gallons of water) in 5% blood serum and dried soap film residue. For heavily soiled areas a pre-cleaning step is required. Rinse all surfaces thoroughly with the disinfesting solution and maintain a visible wet contact time of at least 10 minutes. Product contact surfaces must be rinsed with water of suitable quality. Prepare fresh solution for each use.

**COMBINATION GENERAL DISINFECTION AND CLEANING**

A pre-cleaning step is required for visibly soiled areas. Apply diluted solution with mop, cloth, sponge, brush, scrubber, or coarse spray device or by soaking so as to wet all surfaces thoroughly. Allow to remain visibly wet for required contact time, and then remove solution and entrapped soil with a clean wet mop, cloth, or wet vacuum pickup. Prepare a fresh solution daily or when it becomes soiled or diluted.

When diluted at 0.4% - 1.0% (2 fl. oz. / 4 gallons to 5 fl. oz. / 4 gallons of water) in the presence of 5% blood serum and dried soap film residue with a 10 minute contact time, Oxonia Active LS is effective against: Burkholderia cepacia (ATCC 25416), Sphingomonas paucimobilis (ATCC 6538), Pseudomonas aeruginosa (ATCC 25412), Saccharomyces cerevisiae (ATCC 10414), Proteus vulgaris (ATCC 13315), Streptococcus pyogenes (ATCC 9665), Histoplasma capsulatum† (not tested in the presence of soap film residue). Oxonia Active LS is effective against: Histoplasma capsulatum†, and Histoplasma capsulatum† (not tested in the presence of soap film residue).

**WORLDWIDE HEADQUARTERS**

1 Ecolab Place
St. Paul, MN 55102
USA

www.ecolab.com/lifesciences