#168

**MATERIAL SAFETY DATA SHEET**  
EPA Reg. No. 1839-167-1658  
EPA Est. No. 1658-MO-1

**NFPA RATING:** Health = 3  Flammability = 1  Reactivity = 0  
**HMIS RATING:** Health = 3  Flammability = 1  Reactivity = 0

**SECTION I -- IDENTITY AND MANUFACTURER'S INFORMATION**  
Manufacturer's Name: HILLYARD INDUSTRIES  
Product Name: VINDICATOR+  
Address: 302 North Fourth Street  
Date Prepared: November 14, 2013 (version 5)  
Prepared by: Regulatory Affairs Department  
Emergency Telephone No.: (800) 424-9300 (Only in the event of chemical emergency involving a spill, leak, fire, exposure or accident involving chemicals.)  
Other information calls: (816) 233-1321 (Ext. 8285)  
http://www.hillyard.com

**SECTION II -- INGREDIENTS/IDENTITY INFORMATION**

<table>
<thead>
<tr>
<th>Component</th>
<th>(Specific Chemical Identity: Common Name(s))</th>
<th>CAS#</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>OTHER LIMITS RECOMMENDED</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>N/E</td>
<td>N/A</td>
<td>N/A</td>
<td>60-65</td>
<td></td>
</tr>
<tr>
<td>*Oetyl decyl dimethyl ammonium chloride</td>
<td>32426-11-2</td>
<td>N/E</td>
<td>N/A</td>
<td>N/A</td>
<td>6.510</td>
<td></td>
</tr>
<tr>
<td>Didecyl dimethyl ammonium chloride</td>
<td>7173-51-5</td>
<td>N/E</td>
<td>N/A</td>
<td>N/A</td>
<td>3.255</td>
<td></td>
</tr>
<tr>
<td>Dioctyl dimethyl ammonium chloride</td>
<td>5538-94-3</td>
<td>N/E</td>
<td>N/A</td>
<td>N/A</td>
<td>3.255</td>
<td></td>
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<tr>
<td>Alkyl dimethyl benzyl ammonium chloride</td>
<td>68424-85-1</td>
<td>none</td>
<td>N/A</td>
<td>N/A</td>
<td>8.680</td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>1000ppm</td>
<td>1000ppm</td>
<td>N/A</td>
<td>0 – 5</td>
<td></td>
</tr>
</tbody>
</table>

**SECTION III -- PHYSICAL / CHEMICAL CHARACTERISTICS**

- Specific Gravity (H₂O = 1): 25°C = 1.006  
- Density = 8.38lb/gal  
- Vapor Pressure (mm Hg.): 18.17  
- Percent Volatile by Weight (%): 68 - 70  
- Evaporation Rate (ethyl ether = 1): Slower than 1  
- Solubility in Water: Complete  
- pH (concentrate): 6.75 – 7.75  
- Appearance and Odor: clear, yellow liquid; fresh fragrance

**SECTION IV -- FIRE AND EXPLOSION HAZARD DATA**

- Flash point: 144°F (Tag CC)  
- Flammable Limits: LEL = Not applicable  
- UEL = Not applicable  
- Extinguishing Media: Dry chemical, foam, carbon dioxide, water fog  
- Special Fire Fighting Procedures: Firefighters should wear full fire-fighting turn-out gear (full Bunker gear) including NIOSWH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.  
- Unusual Fire and Explosion Hazards: Irritating and toxic gases or fumes may be released during a fire.

**SECTION V -- PHYSICAL HAZARDS**

- Stability: Stable  
- Conditions to Avoid: Avoid strong oxidizing agents  
- Incompatibility (Materials to Avoid): Anionic compounds, strong oxidizing agents  
- Hazardous Decomposition Products or Byproducts: Upon decomposition, product may yield oxides of nitrogen and ammonia.  
- Hazardous Polymerization: will not occur

**SECTION VI -- HEALTH HAZARD DATA**

**Routes of entry:** Inhalation? yes  
Skin? yes  
Eye? yes  
Ingestion? Yes

**HEALTH HAZARDS (1. Acute and 2. Chronic)**

1. Causes irreversible eye damage and skin burns. May be fatal if absorbed through the skin. Do not get in eyes, on skin or on clothing. Wear protective eyewear (goggles or face shield), clothing, and gloves when handling. Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash before reuse. Inhalation of fine fog mist can cause irritation of mucous membranes. Fine fog mist application is not recommended.  
2. None known to Hillyard.

**Chemical listed as Carcinogen or Potential Carcinogen:**  
- National Toxicology Program = No  
- I.A.R.C. Monographs = No  
- OSHA = No

**Signs and Symptoms of Exposure:** Excessive inhalation of this material causes headache, dizziness, nausea and loss of motor skills. Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.
SECTION VI -- HEALTH HAZARD DATA continued:

Medical Conditions Generally Aggravated by Exposure: None known to manufacturer.

Emergency and First Aid Procedures: If in eyes: Immediately flush eyes with water for at least 15 minutes while holding eyelids open. Get medical attention or advice. If on skin or clothing: Immediately take off all contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If swallowed: Get immediate medical attention or advice. Do not induce vomiting unless told to do so by the poison control center or doctor. If inhaled: Immediately move person to fresh air. If symptoms persist, get medical attention. Have the product container or label with you when calling a poison control center or doctor or going for treatment. NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

SECTION VII -- PRECAUTIONS FOR SAFE HANDLING AND USE
Steps To Be Taken In Case Material Is Released Or Spilled: Caution. Floors may become slippery. Isolate spill or leak area immediately. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. Wear appropriate personal protective equipment during clean-up. Small Spills: Absorb with earth, sand or other non-combustible materials. Transfer to containers for later disposal. Use clean non-sparking tools to collect absorbed material. Large Spills: Dike ahead of liquid spill for later disposal. Keep spill out of sewers and open bodies of water.

Container Disposal: Do not reuse empty container. Triple rinse empty container with water. Return metal drum then offer for reconditioning or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Plastic containers may be disposed of in a sanitary landfill, incinerated, or if allowed by local authorities, by burning. If burned, stay out of smoke. Offer for recycling if available. For containers 1 gallon or less: Do not reuse empty container (bottle, can, or bucket). Wrap container and put in trash. Pesticide Disposal – Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinseate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Precautions To Be Taken In Handling And Storing: Avoid contact with skin and eyes. Avoid breathing vapors or mists of this product. Wash hands before drinking, smoking or using toilet facilities. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage Procedures: Do not contaminate water, food or feed by storage or disposal. Keep the container tightly closed and in a cool well-ventilated place. Avoid freezing or excessive heat.

SECTION VIII -- CONTROL MEASURES

Ventilation: Use with adequate ventilation

Respiratory Protection (Specify Type): If exposure limits are exceeded or if irritation is experienced, NIOSH approved respiratory protection should be worn.

Personal Protective Equipment-Skin: Work clothing sufficient to prevent all skin contact should be worn such as coveralls and long sleeves. Use impervious gloves. Eye Protection: Wear chemical goggles; face shield (if splashing is possible)

Other Protective Clothing or Equipment: Eye wash and safety shower is recommended.

Storage and Handling: Keep this product from heat, sparks or open flame or other sources of ignition. Store in dry place no lower in temperature than 50°F or higher than 120°F. Avoid contact with skin and eyes. Avoid breathing vapors or mists of this product. Wash hands before eating, drinking, smoking or using toilet facilities.

SECTION IX - TRANSPORTATION INFORMATION

Applicable regulations: 49 CFR = No; IMCO = No; IATA = No

Proper shipping name: Cleaning Compound; UN No.: Not applicable; Limited Qty.: Not applicable; Hazard Class: Not applicable

Labels required: Not required Exception: Not applicable

EPA Hazardous waste number/code: Not listed

Hazardous waste characteristics: Ignitability = Not applicable; Corrosivity = Not applicable; Reactivity = Not applicable

DISCLAIMER OF WARRANTIES

NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OF ANY NATURE ARE MADE WITH RESPECT TO THE PRODUCT(S) OR INFORMATION CONTAINED IN THIS MATERIAL SAFETY DATA SHEET. The information and recommendations contained in this Material Safety Data Sheet are supplied pursuant to 29 CFR 1910.1200 of the Occupational Safety and Health Standards Hazard Communication Rule. All information contained herein is presented in good faith and is believed to be appropriate and accurate. THE BUYER OR USER ASSUMES ALL RISKS ASSOCIATED WITH THE USE, MISUSE OR DISPOSAL OF THIS PRODUCT. THE BUYER OR USER IS RESPONSIBLE TO COMPLY WITH ALL FEDERAL, STATE OR LOCAL REGULATIONS CONCERNING THE USE, MISUSE OR DISPOSAL OF THESE PRODUCTS.

Version 5, * Denotes revisions since last published MSDS. Supersedes Version 4 October 11, 2012
This product is a phosphate-free, pH neutral formulation designed to provide effective cleaning, deodorizing, and disinfection for hospitals, nursing homes, households, homes, private residences, schools, office buildings, manufacturing facilities, lodging establishments, retail business, athletic/recreation facilities, sports stadiums and convention centers where housekeeping is of prime importance in controlling cross-contamination. Vindicator+ when used as directed, is formulated to disinfect hard, non-porous, inanimate, environmental surfaces: floors, walls, metal surfaces, stainless steel surfaces, glazed porcelain, glazed ceramic tile, plastic surfaces, vanity tops, shower stalls, bathtubs, and cabinets. Active Ingredients: Octyl decyl dimethyl ammonium chloride 6.510%, Dioctyl dimethyl ammonium chloride 3.255%, Didecyl dimethyl ammonium chloride 3.255%, Alkyl (50% C14, 40% C12, 10% C16) dimethyl benzyl ammonium chloride 8.680%, Inert Ingredients 78.300%.

Features & Benefits
- Leaves a pleasant scent.
- Concentrated for economical cost-in-use.
- EPA registered disinfectant.

Efficacy

**BACTERICIDAL ACTIVITY** - At the 1/2 ounce per gallon dilution, Vindicator+ demonstrates effective disinfectant activity against the organisms: Pseudomonas aeruginosa PRD-10, Salmonella enterica, Staphylococcus aureus, Staphylococcus aureus (clinical isolate), Bordetella bronchiseptica, Corynebacterium ammoniagenes, Enterobacter aerogenes, Enterobacter cloacae, Enterobacter cloacae (clinical isolate), Enterococcus faecalis, Enterococcus faecalis (clinical isolate), Escherichia coli, Escherichia coli (clinical isolate), Fusobacterium necrophorum, Klebsiella pneumoniae subsp. pneumoniae, Lactobacillus casei subsp. rhamnosus, Listeria monocytogenes, Pasteurella multocida, Proteus vulgaris, Proteus mirabilis ATCC 9921, Proteus mirabilis ATCC 25933, Salmonella enterica subsp. enterica serotype paratyphi B, Salmonella enterica subsp. enterica serotype typhi, Salmonella enterica subsp. enterica serotype typhimurium, Salmonella enterica subsp. enterica serotype pullorum, Serratia marcescens, Shigella sonnei, Shigella flexneri Type 2b, Shigella dysenteriae, Staphylococcus aureus subsp. aureus, Staphylococcus epidermidis, Staphylococcus epidermidis (clinical isolate), Streptococcus pyogenes (Clinical - Flesh Eating Strain BIRD M3), Streptococcus pyogenes Group A, Xanthomonas maltophilia (clinical isolate), Vancomycin resistant Enterococcus faecalis (VRE) (ATCC 51575), Methicillin resistant Staphylococcus aureus (MRSA), Vancomycin intermediate resistant Staphylococcus aureus (VISA), Community Associated Methicillin resistant Staphylococcus aureus (CA-MRSA) NRS 121 Genotype USA400, Community Associated Methicillin resistant Staphylococcus aureus (CA-MRSA) NRS 384 Genotype USA300, Salmonella enterica subsp. enterica serotype enteritidis, Salmonella enterica subsp. enterica serotype enteritidis, Ampicillin resistant Acinetobacter baumannii, Cefazolin resistant Acinetobacter baumannii, Cefazoline resistant Acinetobacter baumannii, Ceftriaxone resistant Acinetobacter baumannii, Gentamicin resistant Acinetobacter baumannii, Tobramycin resistant Acinetobacter baumannii, Ciproflaxacin resistant Acinetobacter baumannii, Levofloxacin resistant Acinetobacter baumannii and Bacitracin resistant Acinetobacter baumannii.

**VIRUCIDAL ACTIVITY** - Vindicator+ when used on environmental, inanimate, hard, non-porous surfaces at 1/2 ounce per gallon of water exhibits effective virucidal activity against Human Immunodeficiency Virus Type 1 (HIV-1), Human Immunodeficiency Virus Type 2 (HIV-2), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Herpes Simplex Type 1 (causative agent of fever blisters), Herpes Simplex Type 2 (genital disease), Influenza A2/Hong Kong, Vaccinia, Rotavirus, Human Coronavirus (ATCC VR-740, Strain 229E), SARS Associated Coronavirus, Rabies Virus, Bovine Viral Diarrhea Virus (BVDV), Pseudorabies, Bovine Rhinotracheitis, Feline Leukemia, Feline Picornavirus, Canine Distemper Virus, Paramyxovirus (Mumps), Porcine Respiratory & Reproductive Syndrome Virus (PRRSV) and Avian Influenza A Virus.

Certifications & Registrations
EPA Reg. No. 1839-167-1658

Safety
See material safety data sheet and product label for safety information, handling and proper use.

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Concentrate</th>
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</thead>
<tbody>
<tr>
<td>Health</td>
<td>3</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
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Technical Specifications

<table>
<thead>
<tr>
<th>Color</th>
<th>Yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scent</td>
<td>Floral</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>pH (concentrate)</td>
<td>6.75 - 7.75</td>
</tr>
<tr>
<td>Non-Volatile Matter</td>
<td>22.00 - 23.00%</td>
</tr>
</tbody>
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Dilution Rate 1:256

Availability

<table>
<thead>
<tr>
<th>Item</th>
<th>Pack</th>
</tr>
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<tbody>
<tr>
<td>HIL0016806</td>
<td>4 - 1 Gallon Containers</td>
</tr>
<tr>
<td>HIL0016809</td>
<td>1 - 55 Gallon Drum</td>
</tr>
</tbody>
</table>

Subject to change without notice.
**BACTERICIDAL ACTIVITY**

Containers such as buckets or pails. Use-solution must be discarded and fresh use-solution prepared. Always use clean, properly labeled containers when diluting Vindicator+. Bactericidal stability of the use-solution does not apply to open containers such as buckets or pails.

**BACTERICIDAL ACTIVITY** - At the ½ ounce per gallon dilution, Vindicator+ demonstrates effective disinfectant activity against the organisms: Pseudomonas aeruginosa, Staphylococcus aureus, Enterococcus faecalis, Enterococcus faecium (clinical isolate), Borderella bronchiseptica, Corynebacterium ammoniagenes (clinical isolate), Enterococcus faecalis, Enterococcus faecium (clinical isolate), Listeria monocytogenes, Pasteurella multocida, Proteus vulgaris, Proteus mirabilis ATCC 9291, Proteus mirabilis ATCC 25933, Salmonella enterica subsp. enterica serotype paratyphi B, Salmonella enterica subsp. enterica serotype typhi, Salmonella enterica subsp. enterica serotype typhimurium, Salmonella enterica subsp. enterica serotype pullorum, Serratia marcescens, Shigella sonnei, Shigella flexneri Type 2b, Shigella dysenteriae, Staphylococcus aureus subsp. aureus, Staphylococcus epidermidis, Staphylococcus epidermidis (clinical isolate), Streptococcus pyogenes (Clinical - Flesh Eating Strain BIRD M3), Streptococcus pyogenes Group A, Khashtmans maltophilia (clinical isolate), Vancomycin resistant Enterococcus faecalis (VRE) (ATCC 51575), Metilcillin resistant Staphylococcus aureus (MRSA), Vancomycin intermediate resistant Staphylococcus aureus (VISA), Community Methylcillin resistant Staphylococcus aureus (CA-MRSA) NRS 123 Genotype USA400, Community Methylcillin resistant Staphylococcus aureus (CA-MRSA) NRS 384 Genotype USA300, Salmonella enterica subsp. enterica serotype enteritidis, Ampcillin resistant Acinetobacter baumannii, Cefazolin resistant Acinetobacter baumannii, Ceftazidine resistant Acinetobacter baumannii, Ceftriaxone resistant Acinetobacter baumannii, Levofloxacin resistant Acinetobacter baumannii and Ibacirrin resistant Acinetobacter baumannii.

**DEODORIZATION** - To deodorize, apply Vindicator+ as indicated in the heading DISINFECTION.

**VINDICATOR+**

- Vindicator+ when used on environmental, inanimate, hard, non-porous surfaces at ½ ounce per gallon of water exhibits effective virucidal activity against Human Immunodeficiency Virus Type 2 (HIV-2), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Hepatitis Type 1 (causative agent of fever blisters), Hepatitis Simplex Type 2 (genital disease), Influenza A2/Hong Kong, Vaccinia, Rotavirus, Human Coronavirus (ATCC VR-740, Strain 2296), SARS Associated Coronavirus, Rabies Virus, Bovine Viral Diarrhea Virus (BVDV), Pseudorabies, Bovine Rhinotracheitis, Feline Leukemia, Feline Pirocnovus, Canine Distemper Virus, Paramyxovirus (Mumps), Porcine Respiratory & Reproductive Syndrome Virus (PRRSV) and Avian Influenza A Virus. Kills Pandemic 2009 H1N1 Influenza A virus (formerly called swine flu).

**KILLS HIV-1, HIV-2, HBV, and HCV ON PRE-CLEANED ENVIRONMENTAL SURFACES**

Kills Human Immunodeficiency Virus Type 1 and Type 2 (HIV-1 and HIV-2), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV) and Influenza A Virus (caused by the swine flu virus).

**SPECIAL INSTRUCTIONS FOR CLEANING AND DECONTAMINATION AGAINST HIV-1, HIV-2, HBV, and HCV ON SURFACES/OBJECTS SOILED WITH BLOOD/BODY FLUIDS**

- Blood and other body fluids must be thoroughly cleansed from surfaces and objects before application of Vindicator+. CONTACT TIME: Allow surface to remain wet for 10 minutes. DISPOSAL OF INFECTIOUS MATERIALS: Blood and other body fluids should be autoclaved and disposed of according to local regulations for infectious waste disposal.

**EFFICACY TESTS HAVE DEMONSTRATED THAT VINDICATOR+ IS AN EFFECTIVE BACTERICIDE AND VIRUCIDE IN WATER UP TO 400 PPM HARDNESS (AS CaCO3) IN THE PRESENCE OF ORGANIC SOIL.**

- VINDICATOR+ is an effective virucide against the listed fungi in water up to 200 PPM HARDNESS (AS CaCO3) in the presence of organic soil (5% BLOOD SOLUTION).