



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

July 13, 2021

Kimberly Hensley
Senior Regulatory Specialist
Heritage Systems, Inc.
2471 Solano Ave., Suite 141
Napa, CA 94558

Subject: Label Amendment – Adding Use Sites from Repack Source Label
Product Name: Lancer 5%
EPA Registration Number: 81456-2
Received Date: September 22, 2020
Action Case Number: 00217651

Dear Ms. Hensley:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

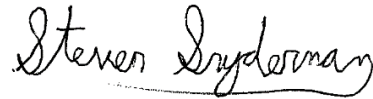
A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. Pursuant to 40 CFR 156.10(a)(6) you must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. See FIFRA section 2(p)(2). If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process, FIFRA section 12(a)(1)(B). Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Assurance.

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Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Aidan Fife by phone at 703-347-8522, or via email at fife.aidan@epa.gov.

Sincerely,

A handwritten signature in black ink that reads "Steven Snyderman". The signature is written in a cursive style with a horizontal line underneath the name.

Steven Snyderman, Product Manager 33
Regulatory Management Branch II
Antimicrobials Division (7510P)
Office of Pesticide Programs

Enclosure: Stamped label

LANCER 5%
(ANTIMICROBIAL SOLUTION)



LANCER 5% is a peroxyacetic acid-based sanitizer/disinfectant developed for the following uses:

**Institutional/Industrial Sanitizer and Disinfectant for
Previously Cleaned Hard, Non-Porous Food Contact Surfaces in:**

Dairies, Wineries, Breweries, Food and Beverage Plants, Poultry and Egg Facilities, and Animal Housing.

Hard Non-Porous Surface Disinfection in: Hospitals, Schools, Industrial Facilities, Office Buildings, & Veterinary Clinics.

Bacteria, Fungi, Slime, Odor and Algae Control in: Recirculating Cooling Water and Evaporative Coolers, Reverse Osmosis, Nano and Ultra Filtration, Agricultural Waters and for Foliar Spraying.

ACTIVE INGREDIENTS:

Peroxyacetic Acid 5.6%

Hydrogen Peroxide 26.5%

INERT INGREDIENTS: 67.9%

TOTAL 100.0%

EPA Registration No.: 81456-2

EPA Establishment Nos.: 87736-CA-001 [, 63838-CA-01]

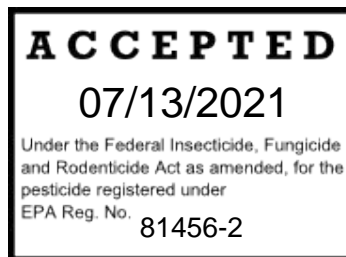
**HERITAGE
SYSTEMS**



*Delivering
Liquid Solutions*

Before Using This Product, Please Read This Entire Label Carefully.
Si usted no entiende la etiqueta, busque a alguien para que se la
explique a usted en detalle.

**KEEP OUT OF REACH OF CHILDREN
DANGER PELIGRO**



FIRST AID

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

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.

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

DANGER CORROSIVE: Do not enter an enclosed area without proper respiratory protection. Causes irreversible eye damage and skin burns. May be fatal if inhaled or absorbed through skin. Harmful if swallowed. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Wear goggles and face shield and rubber gloves when handling. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash before reuse.

Physical or Chemical Hazards

STRONG OXIDIZING AGENT. CORROSIVE. Mix only with potable water below 140°F. Product must be diluted in accordance with label directions prior to use. LANCER 5% is not combustible; however, at temperatures exceeding 156°F, decomposition occurs releasing oxygen. The oxygen released could initiate combustion.

Environmental Hazards

This pesticide is toxic to birds, fish and aquatic invertebrates. Caution must be used when applying indoors because pets may be at risk. Do not discharge effluent containing LANCER 5% into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of the National Pollution Discharge System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing LANCER 5% into sewer systems without previously notifying the local sewage plant authority.

Storage and Disposal

Storage: Never return LANCER 5% to the original container after it has been removed. Avoid all contaminants, especially dirt, caustic, reducing agents, and metals. Contamination and impurities will reduce shelf life and can induce decomposition. In case of decomposition, isolate container, spray container with cool water and dilute LANCER 5% with large volumes of water. Avoid damage to containers. Keep container closed at all times when not in use. Keep container out of direct sunlight. To maintain product quality, store at temperatures below 86°F.

Procedure for Leak or Spill: Stop leak if this can be done without risk. Shut off ignition sources: no flames, smoking, flares, or spark producing tools. Keep combustible and organic materials away. Flush spilled material with large quantities of water. Undiluted material must not enter confined spaces.

Pesticide Disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate 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 Hazardous Waste representative at the nearest EPA Regional Office for guidance. If material has been spilled, an acceptable method of disposal is to dilute with at least 20 volumes of water followed by discharge into suitable treatment system in accordance with all Local, State and Federal environmental laws, rules, regulations, standards, and other requirements. Because acceptable methods of disposal may vary by location, regulatory agencies must be contacted prior to disposal. LANCER 5%, which is to be discarded, must be disposed of as hazardous waste after contacting the appropriate Local, State or Federal agency to determine proper procedures.

Disposal: Refillable container. Refill this container with LANCER 5% only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal - empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with a pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

DOT: UN3098, Oxidizing liquid, corrosive, n.o.s. (contains hydrogen peroxide and peroxyacetic acid mixture, stabilized), 5.1(8), PGII

Directions for Use

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

NOTE: All volumes given in ounces are fluid ounces.

SANITIZATION

LANCER 5%, a peroxyacetic acid sanitizer, is recommended for use on precleaned surfaces such as equipment, pipelines, tanks, vats, filters, evaporators, pasteurizers, and aseptic equipment in dairies, breweries, wineries, beverage and food processing/packing plants, egg processing/packing equipment surfaces, and eating establishments. LANCER 5% is effective as a sanitizer when solution is prepared in water of up to 400 ppm hardness as CaCO₃. LANCER 5% has demonstrated greater than 99.999% reduction of organisms after 60 seconds exposure period in the AOAC Germicidal and Detergent Sanitizing Action of Disinfectants study.

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 daily or more often if the solution becomes diluted or soiled.

Sanitizing Food Contact Surfaces: LANCER 5% can be used in Federally inspected Meat and Poultry facilities as a sanitizer. Prior to sanitizing remove gross food particles, then wash with a detergent solution, followed by a potable water rinse. Sanitize with a concentration of 1.0-6.1 oz. LANCER 5% diluted in 6 gallons of water (0.13-0.79% v/v concentration, or 82-500 ppm active peroxyacetic acid). At this dilution, LANCER 5% is effective against *Staphylococcus aureus*, *Escherichia coli*, *Salmonella enterica*, and *Listeria monocytogenes*. Use immersion, spray or circulation techniques as appropriate to the equipment. All surfaces must be exposed to sanitizing solution for a period of at least 60 seconds or more if specified by a governing code. Drain any excess solution. **Do not rinse.**

Sanitization of Conveyors and Equipment for Meat, Poultry, Seafood, Fruit, Nuts and Vegetables: LANCER 5% is effective against the gram positive organisms *Staphylococcus aureus* and *Listeria monocytogenes* and gram negative organisms *Salmonella enterica* and *Escherichia coli*. For use in the static or continuous sanitizing, washing or rinsing of conveyors, slicers, saws, and equipment, apply a solution of LANCER 5% using 1.0 to 6.1 oz. per 6 gallons of water (82 to 500 ppm active peroxyacetic acid). Apply sanitizer solution to the return portion of the conveyor or equipment using spray or similar means of wetting surfaces, so as to affect draining and prevent puddling. Allow sanitizer to thoroughly wet surface for a minimum 60 seconds contact time. **No rinse is needed.**

Sanitizing of Casing, Shell or Hatching Eggs: To sanitize clean shell eggs intended for food or food products, spray with a solution of LANCER 5% by diluting 1.0-2.4 oz. product with 6 gallons of potable water (providing 82-197 ppm peroxyacetic acid). The solution must be equal to or warmer than the eggs, but not to exceed 130°F. Wet eggs thoroughly and allow to drain. Eggs that have been sanitized with LANCER 5% may be broken for use in the manufacture of egg products without a prior potable water rinse. Eggs must be reasonably dry before casing or breaking. The sanitizing solution must not be reused for sanitizing eggs. For hatching eggs, apply the sanitizing solution as eggs are gathered, or prior to setting, using a spray or flood so as to lightly wet egg shell surfaces. Allow to drain dry.

Sanitizing Eating, Drinking, and Food Prep Utensils: Remove gross food particles by a prescrape, a preflush and when necessary, a presoak treatment. Wash with a recommended detergent. Rinse with clean water. Sanitize using a solution of 1.0 oz. of LANCER 5% diluted in 6 gallons of water. Immerse all utensils for at least 60 seconds or contact time specified by a governing sanitary code. Drain excess solution.

Sanitizing Tableware: For sanitizing tableware in low temperature warewashing machines, inject LANCER 5% into the final rinse water at a concentration of 1.0 oz. LANCER 5% diluted in 6 gallons of water. Do not exceed 0.13% v/v. Air dry. To insure that this sanitizer concentration does not fall below 0.1%, periodically test the rinse solution with a suitable test kit and adjust the dispensing rate accordingly. Consult your technical service representative for assistance and further information on sanitizing tableware in warewashing machines.

Final Sanitizing Bottle Rinse: LANCER 5% may be used as a final sanitizer rinse, followed by adequate draining for returnable and non-returnable bottles at a 0.13-0.79% dilution (1.0-6.1 oz. LANCER 5% in 6 gallons of water), which yields 82-500 ppm active peroxyacetic acid.

Antimicrobial Rinse of Precleaned or New Returnable or Non-Returnable Containers: To reduce the number of beverage spoilage organisms, including *Byssoschlamys fulva*, *Aspergillus niger*, and *Bacillus subtilis* use a 2% to 3% v/v solution, which equals 1120-1700 ppm peroxyacetic acid (2.5-3.8 oz. to 1 gallon of water) of LANCER 5% at a temperature range of 46-60°C for 15 seconds. Higher dilutions of 1 oz. per gallon of water is effective against *Aspergillus niger* and *Byssoschlamys fulva* at 60°C. After adequate draining, rinse interior container surfaces with sterile or potable water.

Foam Cleaning of Food and Non-Food Contact Surfaces: As an adjunct to cleaning and sanitizing procedures, LANCER 5% may be added to PERAFOAM™ (a foam additive) and foamed onto environmental or equipment surfaces using conventional foam-generating equipment. The resultant foam blend can be used on equipment, floors, walls, ceilings, drains, etc. and must be left on the surface for a minimum of 1 minute or longer. On food contact surfaces do not exceed 6.1 oz. of LANCER 5% per 6 gallons of water. **Directions for mixing:** Manually or mechanically blend 1.0-6.1 fl. oz. of LANCER 5% and 6-12 fl. oz. of PERAFOAM™ per 6 gallons of water. The dilution water must not exceed 150°F.

Alkaline Detergent Cleaning Adjunct (Booster) to Clean Food Processing Equipment LANCER 5% is an effective cleaning booster (hypochlorite alternative) for use with alkaline detergents. It may be used as a cleaning additive for Clean-In-Place (CIP) operations involving the circulation cleaning of pipelines, tanks, vessels, evaporators, HTSTs, and other food processing equipment. For cleaning applications as a detergent booster, use 1–6 oz. per gallon of water, to assist in the removal of organic soils. All hard nonporous food contact surfaces treated with this boosted detergent must be thoroughly rinsed with potable water followed by sanitizing with an approved food contact surface sanitizer (such as LANCER 5%).

NON-FOOD CONTACT HARD SURFACE DISINFECTION

Combination Disinfection and Cleaning: LANCER 5% disinfects as it cleans in one operation. LANCER 5% can be used to disinfect floors, walls and other hard nonporous surfaces such as tables, chairs, countertops, bathroom fixtures, sinks, bed frames, shelves, racks, carts, refrigerators, coolers, tile, linoleum, vinyl, glazed porcelain, and use sites on this label made of plastic, stainless steel, or glass. For areas of use in hospitals, use LANCER 5% for surgical and obstetrical suites, housekeeping services, physical therapy departments, nursing services, autopsy facilities. Also use LANCER 5% in nursing homes, other health-care facilities, schools, colleges, veterinary clinics, animal life science laboratories, industrial facilities, dietary areas, office buildings, recreational facilities, retail and wholesale establishments.

LANCER 5% is effective against *Staphylococcus aureus*, *Salmonella enterica*, *Pseudomonas aeruginosa*, *Trichophyton mentagrophytes* and *Escherichia coli* O157:H7 at 0.38-3.0% v/v (2.5-20 oz. per 5 gal) in hard water (400 ppm as CaCO₃) and 5% organic soil loading on hard nonporous surfaces. For heavily soiled areas a pre-cleaning step is required, followed by a potable water rinse. Apply solution with a mop, cloth, sponge, brush, etc. or by soaking or immersion so as to wet all surfaces thoroughly. Allow to remain wet for 10 minutes, then remove solution and entrapped soil with a clean wet mop, cloth, wet vacuum pickup, or by draining. Surfaces that may directly or indirectly contact food must be rinsed with potable water before operations resume. A rinse for non-food contact surfaces is optional. Prepare a fresh solution daily or when it becomes soiled or diluted.

FOGGING IN FILLING, PACKAGING, STORAGE, AND DISPENSING ROOMS OR AREAS: LANCER 5% can be applied by fogging to control the growth of non-public health microorganisms that may cause decay and/or spoilage on raw, post-harvest fruits and vegetables.

1) Use in secure fruit and vegetable storage system. Vacate all personnel prior to fogging. Post notice of when personnel can re-enter. After application, purge room with fresh air to replace treated air. Ensure room is properly ventilated. Personnel may re-enter 4 hours after system has been properly aired. Ensure there is no strong odor characteristic of vinegar before having personnel return to work area.

2) Fog areas to be treated by adding 3.0 - 17.5 fl. oz. of LANCER 5% into humidified air per 1000 cu. ft. of room volume for a minimum of 4 hours. Inject concentrate into water used for fogging of postharvest fruits and vegetables in storage using any type of fogging equipment including: cold foggers, thermal foggers, low pressure air assisted and high pressure fog systems. Adjust water level accordingly to allow fogging apparatus to fog for a minimum of 4 hours.

FOGGING – NON-PUBLIC HEALTH: LANCER 5% can be applied by fogging to control the growth of non-public health spoilage and decay causing bacteria on hard, non-porous surfaces in dairies, beverage and food plants including meat and poultry processing facilities. All surfaces must be pre-cleaned prior to fogging.

Directions for Fogging in Dairies, Beverage and Food Handling Plants (including meat and poultry processing facilities): Prior to fogging, food products and packaging material must be removed from the room or carefully protected. The room or building must be vacant of all personnel during and at least two hours after the fogging treatment. Calculate the volume of the room to determine volume of solution needed to fog (one quart per 1000 cu. ft. of room area). Prepare a solution containing 1.0-1.4 fl. oz. per 4 gallons of water and fog using a mechanical fogging apparatus. Fog product for length of time necessary to fill room based on fogging apparatus manufacturer directions. Surfaces must remain undisturbed for 5 minutes after room fill is achieved before initiating aeration of the room.

Do not enter the treated area for a minimum of 2 hours [or 8 air exchanges (ACH)] after fogging is completed. If the room or building must be entered prior to complete aeration, the individual must wear a self-contained respirator approved by NIOSH/MSHA, goggles, long sleeves, and long pants.

The fog generated is irritating to the eyes, skin and mucous membranes. Wear a dust mist respirator when mixing the use solution and pouring it into the mechanical fogging apparatus. All food contact surfaces must be thoroughly rinsed with potable water prior to sanitizing with an EPA approved food contact sanitizer.

AGRICULTURAL or HORTICULTURAL USES

Upon soil contact, LANCER 5% decomposes rapidly to oxygen, carbon dioxide and water. LANCER 5% may be harmful to fish if exposed on a continuous basis at concentrations of 0.5 ppm or more of active peroxyacetic acid. Meter LANCER 5% into pressurized pipes using a plastic or stainless steel injection/backflow device installed far enough upstream from the target equipment to ensure thorough mixing. If open pouring of LANCER 5% is required pour product as close to the surface of the water as possible to reduce odor exposure. Spray lines, hoses and tanks must be clean before using LANCER 5%. Make sure no iron or yellow metals are in contact with the spray solution at any time. Only stainless steel or plastic contact materials may be used in your spray rig.

[Compatibility:

This product is compatible as a direct injection or tank-mix with many commonly used pesticides, fertilizers, adjuvants and non-ionic surfactants but has not been fully evaluated with all of these. Do not direct inject or tank mix this product into the irrigation system or in spray tank with pesticides, surfactants or fertilizers before conducting a compatibility test to show it is physically compatible, effective and noninjurious under your use conditions. Do not tank mix this product with copper or other pesticides containing metals at a dilution rate stronger than 1:100.

To ensure compatibility, evaluate them prior to use as follows: Using a suitable container, add proportional amounts of product to water. Add wettable powders first, followed by water dispersible granules, then by liquid flowables and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of application.]

[Phytotoxicity Test Procedure:

1. Select healthy typical plants of each cultivar or type on which the pesticide will be used.
2. Read the pesticide label to determine the application site (roots or leaves), the rate of application (amount per gallon/liter), and the interval of application (number of days between application).
3. Use clean spray equipment and perform the test during the time of day when most of your pesticide applications will occur.
4. Have one control set of plants which are sprayed with water only. Control sprayed plants must be sprayed under the same conditions as pesticide-sprayed plants.
5. Wait for signs of phytotoxicity before determining that a pesticide is safe. Phytotoxic effects can range from slight burning or browning of leaves to death of the plant. Sometimes damage appears as distorted leaves, fruit, flowers, or stems.]

Treatment of Irrigation Water Systems (sand filters, humidification systems, storage tanks, ponds, reservoirs, canals, drip and sprinkler systems) (Not for Use in New York): For the control of odor, sulfides, non-pathogenic bacteria, slime and algae in water systems, apply LANCER 5% at 0.4 - 2 oz. per 100 gal of water (2-10 ppm peroxyacetic acid). This feed rate equals 0.31 - 1.6 gal per 10,000 gallons of water. Repeat dose as necessary to maintain control, which will vary with seasonal conditions. For prevention of algae some systems may require continuous low level dosing during warm sunny periods.

Drip Irrigation System Cleaning: To clean slime and algae from drip system tapes and emitters, meter LANCER 5% upstream from pumps or filters at the rate of 1-2 oz. per 50 gallons of water (10-20 ppm peroxyacetic acid). This feed rate equals 1.5 - 3 gal per 10,000 gallons of dilution water. When required, during normal irrigation cycles, use LANCER 5% at the recommended dose for a minimum of 30 minutes. After an irrigation cycle do not flush the lines.

Spray Tank Treatment for Agricultural Water: In accordance with the Food safety Modernization Act (FSMA), agricultural water applied to a growing food crop must be treated to within the microbial water quality profile (MWQP). For the control of odor, sulfides, non-pathogenic bacteria, slime and algae add 2-10 ppm LANCER 5%.

Greenhouses: LANCER 5% can be used to suppress/control algae and slime formations in and around greenhouses. For normal use in various process, irrigation or sprinkler watering systems, LANCER 5% may be used at 1:15,000 to 1:1,900 dilutions (4-33 ppm as peroxyacetic acid). Heavily fouled systems, such as evaporative coolers or irrigation/drip lines, may need shock doses of up to 100 ppm as peroxyacetic acid (1:630 dilution).

NOTE: LANCER 5% at its use dilution is compatible with stainless steel and aluminum surfaces. If product is intended to be used on any other surface, it is recommended that you apply LANCER 5% to a small test area to determine compatibility before proceeding with its use.

Pre-Plant Dip Treatment: Use LANCER 5% for the control of damping-off, root disease and stem rot disease caused by *Pythium* (root rot) – *Phytophthora* (blights, rots) – *Rhizoctonia* (blight, stem rot) *Fusarium* (root-rot, leaf spot, Pink Snow Mold) – *Thielaviopsis* (black root rot), on seeds, seedlings, bulbs, or cuttings. Remove dead or dying foliage prior to dipping.

1. Use 20 fl. oz. per 50 gallons of water.
2. Immerse plants or cuttings; remove and allow to drain. Do not rinse.
3. Excessive foaming or bubbling during the dipping process is an indication of high levels of disease contamination.

Seed Treatment:

Use LANCER 5% for the control of damping-off, root disease and stem rot disease caused by *Pythium* (root rot) – *Phytophthora* (blights, rots) – *Rhizoctonia* (blight, stem rot) *Fusarium* (root-rot, leaf spot, Pink Snow Mold) – *Thielaviopsis* (black root rot), on seeds of seed sprout crops such as mung bean, red clover, soybeans and alfalfa, and on crops grown exclusively for seed for planting.

1. Use 20 fl. oz. per 50 gallons of water.
2. Immerse seeds and let soak for two minutes; remove and allow to drain. Do not rinse. Plant seeds according to seed package directions.

Soil Applications:

LANCER 5% is effective in the control of the following soil-borne plant pathogens: *Fusarium* (root-rot, leaf spot, Pink Snow Mold) – *Phytophthora* (blights, rots) – *Pythium* (root rot) – *Rhizoctonia* (blight, stem rot) – *Verticillium* (wilt).

Use LANCER 5% as a direct soil treatment, as a pre-plant application, at seeding or transplanting, and as a periodic soil treatment throughout the plant's life up to the day of harvest. The performance of LANCER 5% is not affected by fumigation. Use LANCER 5% on fumigated and unfumigated soil.

Soil Treatment Prior to Seeding or Transplanting: Cultivate the soil prior to treatment. Break-up compacted soil and clods to loosen soil completely. Mix 102 fl. oz. of LANCER 5% per 100 gallons of water to yield approximately 500 ppm PAA. Make banded or broadcast applications of 25 to 100 gallons of solution per acre-row either prior to planting or at the time of planting. LANCER 5% will not harm seedlings or plants when applied at labeled rates. In fields with a history of disease pressure, use the 100 gallons of mixed solution per acre-row rate.

Soil Treatment with Established Plants or Seedlings: Apply LANCER 5% at any stage of plant growth as a soil treatment up to the day of harvest. Make applications using soil drench, flood or drip irrigation. Ensure that soil moisture of the beds is at or near field capacity prior to application.

Soil Drench: Apply 20-41 fl. oz. of LANCER 5% per 200 gallons of water per 1,000 square feet of soil to be treated to yield approximately 50 - 100 ppm PAA.

Flood Irrigation: Inject LANCER 5% through a metered system using 100 fl. oz. of LANCER 5% per 1,000 gallons of water used to yield approximately 50 ppm PAA.

Drip Irrigation: Apply LANCER 5% through the drip tape at a rate of 10.7 - 24 fl. oz. per 1,000 feet of row. Inject LANCER 5% through a metered system using 100 fl. oz. of LANCER 5% per 1,000 gallons of water used to yield approximately 50 ppm PAA. Apply first treatment during the first drip irrigation cycle. Apply two additional treatments at 7-14 day intervals. Under severe disease conditions, apply at 7-day intervals using the highest rate. Under severe disease conditions and during periods of rainy weather, apply LANCER 5% immediately following rain to suppress the spread of disease and help oxygenate the soil. Combine lower rates of LANCER 5% with other non-metal based fungicides.

Row Center Spacing	Rate of This Product	Application Instructions
5.5 – 6 ft.	100 – 134 fl. oz. per acre	<ul style="list-style-type: none"> • Apply through irrigation systems using a 45 - 90 minute run time • Repeat applications at 7 - 14 day intervals

Foliar Applications: LANCER 5% can be applied to the following growing crops to control fungi. Crops: root vegetables, potatoes, berries, strawberries, citrus fruit, pome fruit, stone fruit, herbs, spices, peppers, tomatoes, eggplant, sweet potatoes, bulbs, onions, cucurbits, cucumbers, tropical fruits, avocados, bananas, mangoes, grapes, brassicas, peas, beans, soybeans, cereal crops, rice, wheat, peanuts, alfalfa, chinese vegetables, greens, lettuce, leafy greens, celery, apiaceae, cranberries, legumes, corn (field, sweet, seed), wild rice, cole crops, garlic, leeks, green onions, mushrooms, sugar beets, tobacco, grass for seed or sod, asparagus, nuts, walnuts, pistachios, macadamia nuts, almonds, cotton, and coffee.

To suppress/control/prevent the following non-human plant pathogens: Alternaria, Angular leaf spot, Anthracnose, Bacterial blotch, Bacterial speck, Bacterial spot, Black rot, Blights, Blue mold, Botrytis, Brown rot, Citrus canker, Cladosporium, Crown rot, Downey mildew, Early blight, Fruit rot, Fusarium, Gray leaf spot, Gummy stem blight, Leaf blight, Leaf rust, Leaf spot, Mycogene, Necrotic spot, Phytophthora, Potato brown rot, Powdery mildew, Pythium, Rhizoctonia, Rust, Scab, Sclerotinia, Shot hole, Sooty mold, Stem rot, Trichoderma, Verticillium, White mold.

Initial Curative Application:

1. Use 3.4 - 6.8 fl. oz. of LANCER 5% per 5 gallons of clean water.
2. Do not reuse already mixed solution; make fresh daily. Spray or mist plants and trees.
3. Thoroughly wet all surfaces of plant, upper and lower foliage, including stems, branches, and stalks to ensure full contact with plant tissue.
4. Based on the disease severity, apply for one to three consecutive days and then follow directions for preventative treatment after the initial application.

Weekly Preventative Treatment:

1. Use 0.66 - 1.1 fl. oz. of LANCER 5% per 5 gallons of clean water.
2. Spray or mist plants and trees.
3. Thoroughly wet all surfaces of plant, upper and lower foliage, including stems, branches, and stalks to ensure full contact with plant tissue.
4. Based on the disease pressure, spray every five to seven days as a preventative treatment.
5. At the first sign of disease, spray daily with 3.4 - 6.8 fl. oz. of LANCER 5% per 5 gallons of water for three consecutive days and then resume weekly preventative treatment.

Apply solution at 50-100 gallons per treated acre, depending on spray method used.

Note: 1 fl. oz. of LANCER 5% per 5 gallons of water = 100 ppm PAA

A nonionic spreader (surfactant) adjuvant should be used for better results. Contact your local supplier or farm supply.

DISINFECTION OF ANIMAL AND POULTRY PREMISES, TRUCKS, COOPS AND CRATES

LANCER 5% is designed for use in animal hospitals, animal laboratories, kennels, pet shops, zoos, pet animal quarters, poultry premises, poultry hatcheries, and livestock quarters. When used as directed, LANCER 5% is specifically designed to disinfect, deodorize and clean inanimate, hard surfaces such as walls, floors, sink tops, furniture, operating tables, kennel runs, cages and feeding equipment. In addition, LANCER 5% will deodorize those areas which are generally hard to keep smelling fresh, such as garbage storage areas, empty garbage bins and cans, and any other areas which are prone to odors caused by microorganisms.

Disinfection of Poultry Premises: For heavily soiled areas, a pre-cleaning step is required. Prepare a fresh solution for each use. Remove all poultry and feeds from premises, trucks, coops and crates. Remove all litter and droppings from floors, walls and surfaces of facilities occupied or traversed by poultry. Empty all troughs, racks and other feeding and watering appliances. Thoroughly clean all surfaces with a detergent and rinse with water. Saturate surfaces with a 0.38-1.25% v/v (2.5-8.0 fl. oz. per 5 gal) solution of LANCER 5% for a period of 10 minutes. Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with a detergent and rinse with potable water before reuse. Ventilate buildings, coops and other closed spaces. Do not house poultry or employ equipment until treatment has been absorbed, set or dried. All treated equipment that will contact food, feed, or drinking water must be rinsed with potable water before reuse. See your technical representative for specific recommendations for all cleaning and rinsing requirements.

Disinfection and Deodorizing of Animal Housing Facilities (Barns, Kennels, Hutches, Etc.): Remove animals and feed from premises, vehicles, and enclosures. Remove litter, waste matter from floors, walls and surfaces of barns, pens, stalls, chutes, and other facilities and fixtures occupied or traversed by animals. Empty all troughs, racks and other feeding and watering equipment. Thoroughly clean all surfaces with soap or detergent and rinse with water. Saturate surfaces by applying a 0.38% (2.5 fl. oz. per 5 gal) solution of LANCER 5% with a mop, brush or spray. Wet all surfaces and allow to remain wet for 10 minutes. Immerse all halters, ropes, and other types of equipment used in handling and restraining animals, as well as forks, shovels and scrapers used for removing litter and manure. Ventilate buildings and other closed spaces. Do not house livestock or employ equipment until treatment has been absorbed, set, or dried. Thoroughly scrub all treated feed racks, mangers, troughs, automatic feeders, fountains and waterers with soap or detergent, and rinse with potable water before reuse.

CLEANING POULTRY, SWINE, AND LIVESTOCK DRINKING WATER LINES

For drinking water lines using holding tanks make a stock solution by one of the following methods:

- Drinking water lines 500 feet in length or less: mix 2.1 gallons (270 fl oz) of LANCER 5% with 100 gallons of water.
- Drinking water lines exceeding 500 feet in length: mix 4.2 gallons (540 fl oz) of LANCER 5% with 200 gallons of water.

Pump the stock solution, completely filling the drinking water lines.

If the drinking water lines are not supplied by water from holding tanks, prepare a stock solution by one of the following methods:

- Mix 1.0 gallon (132 fl oz) of LANCER 5% with 49 gallons of water in a 50 gallon tank, pumping this solution into the water line, repeating the process as often as needed, until water line is filled.
- Fill the water line, using a proportioner, set to inject LANCER 5% undiluted at a rate of 1:47.

After the water line is filled with the stock solution, activate nipple drinkers to ensure contact with drinkers. Allow the stock solution to remain in the water lines for 24-48 hours. Flush lines with fresh water until water is visibly clear. Always make a fresh stock solution before use.

MAINTAINING POULTRY, SWINE, AND LIVESTOCK DRINKING WATER SYSTEMS

After watering lines have been cleaned, use this product at 0.8 - 1.1 fl oz per 100 gallons of water (4 - 5.7 ppm as peroxy acetic acid) to control algae and bacteria in drinking water and to control mineral build up in watering lines. Stop the use of this product twenty-four (24) hours prior to vaccination via the water line.

Control of Slime Forming Bacteria in Recirculating and Cooling Water Systems (Cooling Towers, Evaporative Condensers, Pasteurizers, and Air Washers): Severely fouled systems must be cleaned before adding the LANCER 5% solution. LANCER 5% must be added to the system directly and not mixed with any other chemicals or additives. Discontinue the use of chlorine or bromine products prior to using LANCER 5%. Contamination with other chemicals could result in product decomposition. Add LANCER 5% at a point in the system where uniform mixing and even distribution will occur. For slug treatment add 20 oz. of LANCER 5% per 1000 gallons of process water. Repeat as necessary until microbiological control is evident. Thereafter, to maintain control, use 0.3-1.5 lbs. (4.0-17.5 fl oz) of LANCER 5% per 1000 gallons of process water (2-9 ppm active peroxyacetic acid) as a continuous or intermittent slug treatment. Continuous dosing methods usually require 2-5 ppm active peroxyacetic acid (4.0-10.2 fl. oz. per 1000 gallons of process water) to achieve adequate control.

Air Washers: LANCER 5% may be used to control bacteria and biofouling in industrial air washing/scrubbing systems. The air washer must have operational and effective mist elimination systems. Prior to use of LANCER 5%, heavily fouled systems must be pre-cleaned using the appropriate cleaner. Continuous dosing methods will require 2-7 ppm and intermittent dosing methods require 7-14 ppm (as peroxyacetic acid), as described in the previous paragraph, depending on the type of system and the level of microbiological control desired.

Evaporated or Condensed Water: LANCER 5% may be used to treat SWEET or COW water (e.g. condensate of whey) collected from evaporated or condensing water systems in food or dairy plants. Typically, the dosing regime would be using intermittent or continuous methods at 2-14 ppm as peroxyacetic acid.

Reverse Osmosis (RO), Ultra Filtration (UF), and Other Membrane Cleaning-Sanitizing: LANCER 5% may be used in the sanitization of Ultra Filtration (UF) and Reverse Osmosis (RO) membranes and other similar type membranes and their associated piping systems. LANCER 5% may be added continuously in food, beverage, and drinking water systems for RO (reverse osmosis) systems only and in accordance with the instructions below. LANCER 5% is not for use in kidney dialysis equipment. LANCER 5% may not totally eliminate all vegetative microorganisms in RO, Nano Filtration (NF) or UF membranes and their associated piping systems due to their construction or assembly, but can be relied upon to reduce the number of microorganisms to acceptable levels when used as directed. Prior to using LANCER 5%, check with the membrane manufacturer to confirm compatibility of membranes with various types or concentrations of peroxyacetic acid solutions.

Batch Sanitation of NF, UF and RO Systems: Isolate incompatible equipment, such as carbon filters and ion exchangers. Clean system with an appropriate cleaner and follow with RO permeate water or potable water. Remove mineral deposits if necessary with an acidic cleaner, and rinse as before. Fill entire system with water and add up to 1% of LANCER 5% by volume (620 ppm peroxyacetic acid) for heavily fouled systems. The typical sanitation use solution dosing of LANCER 5% is 1-2 oz. per 5 gallons of water (98-195 ppm peroxyacetic acid). Recirculate the sanitizing solution through the piping and membrane system at 20°C for 10 minutes minimum, or up to 4 hours, depending on the severity of cleaning to be done. Open and close process valves and solenoids to be sure all parts are in contact with the solution. For occasional intermittent feed, do not exceed 98 ppm active peroxyacetic acid, which equals 1 oz. of LANCER 5% per 5 gallons of feed water. Do not use the intermittent feed method for on-line use for potable water or direct food contact systems. Rinse the system with RO permeate or potable water until residual peroxygen concentration is below 1 ppm.

RO Continuous or Intermittent Addition: For continuous addition methods for RO systems, use 2-5 ppm active peroxyacetic acid (36-90 ppm as product), which equals 1.8-4.5 oz. LANCER 5% per 430 gallons of process water. For occasional intermittent feed, do not exceed 98 ppm active peroxyacetic acid, which equals 1 oz. of LANCER 5% per 5 gallons of feed water. Do not use the intermittent feed method for on-line use in potable water or direct food contact systems.

Fruit and Vegetable Water Treatment: LANCER 5% may be used to help control spoilage or decay-causing bacteria and fungi in water or ice that contacts raw, unprocessed fruits and vegetables in commercial operations and packing houses. For the target commodity, use continuous spray or submerge using a solution containing 4 oz. LANCER 5% per 20 gallons of water (100 ppm peroxyacetic acid). Adjust dose as necessary to obtain satisfactory efficacy. Remove excess water or allow to drain. If using the submersion method, replace with a fresh solution as necessary or when it becomes visibly soiled. A final potable water rinse is not necessary.

LOT #: _____

Net Contents: _____