



TENNESSEE - Biosecurity Information Packet (August 2015)

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Additional information can be found by visiting the following websites:

http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=avian_influenza.html

<http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/emergencyresponse/>

Contact: Kelly B. Gupton, NRCS Agricultural Engineer, kelly.gupton@tn.usda.gov, 615-277-2581

Subpart H – Biosecurity Preparedness and Response

Subpart H – Biosecurity Preparedness and Response

403.80 Purpose

To provide policy for all NRCS employees on implementing proper biosecurity measures.

403.81 General

The transmission of infectious animal diseases, such as foot and mouth, avian influenza, porcine epidemic diarrhea virus (PEDv), Johne's disease, and others, threaten the food supply. The spread of plant pests, plant diseases and noxious weeds can destabilize an abundant, high-quality, and varied food supply. These threats are a national concern requiring the cooperative participation of NRCS and USDA agencies and partners.

403.82 Background

NRCS is a member of the USDA interagency forum of the National Food and Agriculture Council (NFAC) along with the Animal and Plant Health Inspection Service (APHIS) and other agencies. APHIS is the lead agency for providing technical guidance for plant and animal concerns. This information is maintained through the APHIS Web site <http://www.aphis.usda.gov/wps/portal/aphis/home/>.

NFAC issued guidelines for all USDA employees to follow to minimize risk of the spread of diseases affecting animal health and welfare, plants health, and the spread of invasive species. The NRCS Associate Chief of Conservation has responsibility for NRCS conservation activities and programs which includes participation on the NFAC.

403.83 Authorities

This policy is based on and addresses the following authorities in partnership with APHIS under the Plant Protection Act, as amended (7 U.S.C. 7701-7786), and the Animal Health Protection Act (7 U.S.C. 8301 et seq.).

403.84 Policy

A. Animal production protection

(1) At all times, the NRCS employee will adhere to the level of biosecurity applicable to the planned activity, or to more stringent measures that the farmer/rancher or owner/producer has in place. The selection of level 1, 2, or 3 biosecurity measures will depend on the degree of interaction of NRCS staff with the producer's office, facilities, or livestock. To the extent possible, avoid situations that require level 3 biosecurity by conducting visits when livestock are not present.

(2) During periods of heightened concern, before an identified outbreak, and for the prevention of the spread of infectious animal disease, additional procedures beyond those outlined in levels 2 and 3 below may be implemented if specified by APHIS or the State veterinarian.

(3) Biosecurity levels

(i) **Level 1.**—Visits to farms/ranches that entail office or home visits only, the NRCS employee will:

- Park the vehicle on hardened area designated for parking, if available. Park the vehicle away from animal areas and out of any runoff coming from animal areas. Avoid driving in manure or wastewater runoff.
- Wash hands with soap and water or an antibacterial gel that is at least 60 percent alcohol before entering and after leaving the premises to avoid transmitting disease agents from person to person.

(ii) **Level 2.**—Visits to farms / ranches where minimal contact with animal manure, livestock/poultry, or their housing (barns, pens, hutches, etc.) is unavoidable to attain the goal of the visit, the NRCS employee will:

- Preplan the needed supplies for daily visits including, but not limited to, boots (rubber or disposable plastic), a large water container/sprayer, a spray bottle for application of a bleach/water mixture or an Environmental Protection Agency- (EPA) approved disinfectant, bleach or disinfectant, a long-handled brush, trash bags, paper towels, liquid antibacterial soap or an antibacterial gel that is at least 60-percent alcohol, and a bucket/pail as needed.
- Designate a "clean" area in your vehicle to place clean equipment and boots.
- Designate a "dirty" area in your vehicle for clothing and equipment that has been

used on the farm.

- Wash hands with soap and water or an antibacterial gel after entering and before leaving the premises to avoid transmitting disease agents from person to person.
- Put on clean rubber or new plastic boots prior to exiting the vehicle.

- Clean dirt and manure from equipment and rubber boots with a brush and water. Disinfect the equipment and boots with bleach (1/2 cup bleach to 1 gallon water) or an EPA-approved disinfectant solution. The EPA listing of potential pesticides for use against the causative agents of animal diseases in farm settings can be found at:

- http://www.aphis.usda.gov/animal_health/emergency_management/downloads/fad_epa_disinfectants.pdf. Mix and apply the disinfectant according to label directions to ensure the proper contact time of the disinfectant with the surface being disinfected. Dispose of disinfectant solution according to the label. Do not discard unused disinfectant on the ground.

- If the vehicle comes into contact with dirt or manure during the farm visit, clean dirt and manure from tires and wheel wells with water and a brush. If possible, also remove dirt and manure from other parts of the vehicle. Disinfect the tires and wheel wells with a bleach/water mixture or with an EPA-approved disinfectant solution. If the vehicle cannot be cleaned in the field, take it to a car wash before visiting another farm/ranch. Give extra attention to cleaning the undercarriage.

- Place plastic boots in a plastic bag and leave the bag on the premises for disposal by the owner/producer or place the bag in a designated dirty area of your vehicle.

(iii) **Level 3.**—Visits to farms/ranches where there will be close contact with livestock/poultry (walking through narrowly confined pens/lots where animals are within reach or handled in the process of working), the NRCS employee will use level 2 biosecurity plus the following procedures:

- Preplan the needed supplies and clothing for daily visits including, but not limited to, coveralls (cloth or disposable) and nitrile gloves;
- Put on a pair of clean coveralls for each visit.
- Remove coveralls in a manner that they are inside out and place them in a trash bag.
- Place the clean equipment and boots in the designated clean area of the vehicle.
- Dispose of all plastic bags that contain dirty supplies in a manner that prevents exposure to other livestock.
- Launder all cloth coveralls.
- Shampoo hair and clean under fingernails.

(4) During an outbreak of an infectious animal disease NRCS employees will not enter affected areas except in response to a request from the State veterinarian or other responsible official. In those situations, the employee will follow the biosecurity measures as required by APHIS, the State veterinarian, and other responsible official.

B. Crop production protection

NRCS employees will be responsible for actions in visiting fields. Assume that every farm is a potential risk to carry disease organisms, and act accordingly. Plan to schedule work in fields during the period of time when crops are not growing if possible. During visits to fields, the employee will:

- (i) Preplan the needed supplies for daily visits including, but not limited to, a large water container/sprayer and a long-handled brush. Include a camera and airtight closable plastic bags, if plant collection is anticipated.
- (ii) Park vehicles away from potential infected sites to avoid contact with soil, seeds, or diseases.
- (iii) Only use equipment that is clean and free of soil, seeds, and organic matter.
- (iv) Follow any quarantine restrictions directed by the landowner, APHIS, and other responsible agency. Follow biosecurity procedures as required by the landowner.
- (v) Clean all equipment, shoes, and clothing of soil, seeds, or organic matter before leaving the site.
- (vi) If the vehicle is contaminated with soil, seeds, or organic matter, scrub the tires and wheel wells with a brush and water before leaving the site. If the vehicle cannot be sufficiently cleaned in the field, take it to a car wash before visiting another farm/ranch. Give extra attention to cleaning the undercarriage.
- (vii) Photographic images are recommended as a method of safe plant identification for unfamiliar plants.
- (viii) Use an airtight closable plastic bag to carry plants or plant pests removed from the site for off-site identification. Dispose of materials identified as diseased, infested, noxious, or invasive in a manner that will prevent spreading.

403.85 Roles and Responsibilities

A. The Deputy Chief for Science and Technology is responsible for ensuring that biosecurity procedures for infectious animal and plant diseases, noxious or invasive plants, and plant pests are current.

B. Regional Assistant Chiefs are responsible for ensuring that States and Caribbean and Pacific Island Areas are familiar with the agency policy on biosecurity measures.

C. State Conservationists and the Directors of the Caribbean Area and Pacific Islands Area will:

- (i) Communicate the NRCS policy to all offices and State partners.
- (ii) Provide all NRCS offices with required equipment, materials, and information to implement biosecurity measures and preparedness.

D. District Conservationists (or designated employees responsible for local management of NRCS resources) will:

- (i) Ensure local staff follows procedures as stated above to prevent the spread of livestock and poultry diseases, plant pests, plant diseases, and noxious/invasive plants. Additional information regarding safety and health can be found in Title 360, General Manual (GM), Personnel, Part 420, Safety and Health Management Program.
- (ii) Ensure local partners and technical service providers (TSPs) are familiar with the above procedures.
- (iii) Provide a status report as requested to the appropriate line officer of activities and conditions in the local area for NRCS biosecurity preparedness and response.

BIOSECURITY UPDATE



AUGUST 12, 2015

**KELLY GUPTON, AG. ENG.
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NEGATIVE ATTITUDES AND BAD HABITS

set the stage for disease transmission. You can help reduce threats to biosecurity by avoiding:

OVERCONFIDENCE

"Im not a disease carrier."

STUBBORNNESS

"I don't want to do it."

SARCASM

"It's too prissy."

CARELESSNESS

"The farmer doesn't care."

LAZINESS

"It's too much trouble."

IMPATIENCE

"It'll take me all day if I do it that way."

IGNORANCE

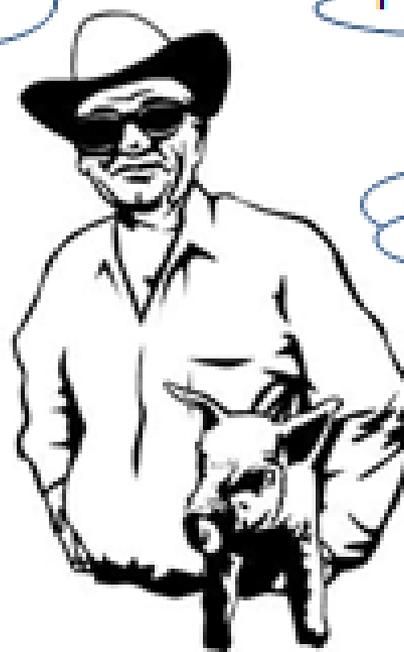
"I don't know how to do it."

SHOWING OFF

"I don't need to do that."

FORGETFULNESS

"I meant to, but I forgot."



Learn how you can do your part in **Biosecurity**

May 15, 2015

HEALTH

Feds, states grapple to contain worst bird flu outbreak on record

Published May 15, 2015 · FoxNews.com



The federal government has appropriated \$330 million to help manage the growing bird flu crisis. (AP)

Government officials were working closely with the nation's poultry industry Friday to contain the worst outbreak of bird flu on record, one that already has prompted the governors of four states to declare emergencies and led to the culling of 33 million birds in 16 states.

ADVERTISEMENT

Health Video



What are the odds?
Couple with dozen sons welcomes 13th boy



Dealing with injuries in the Amtrak crash



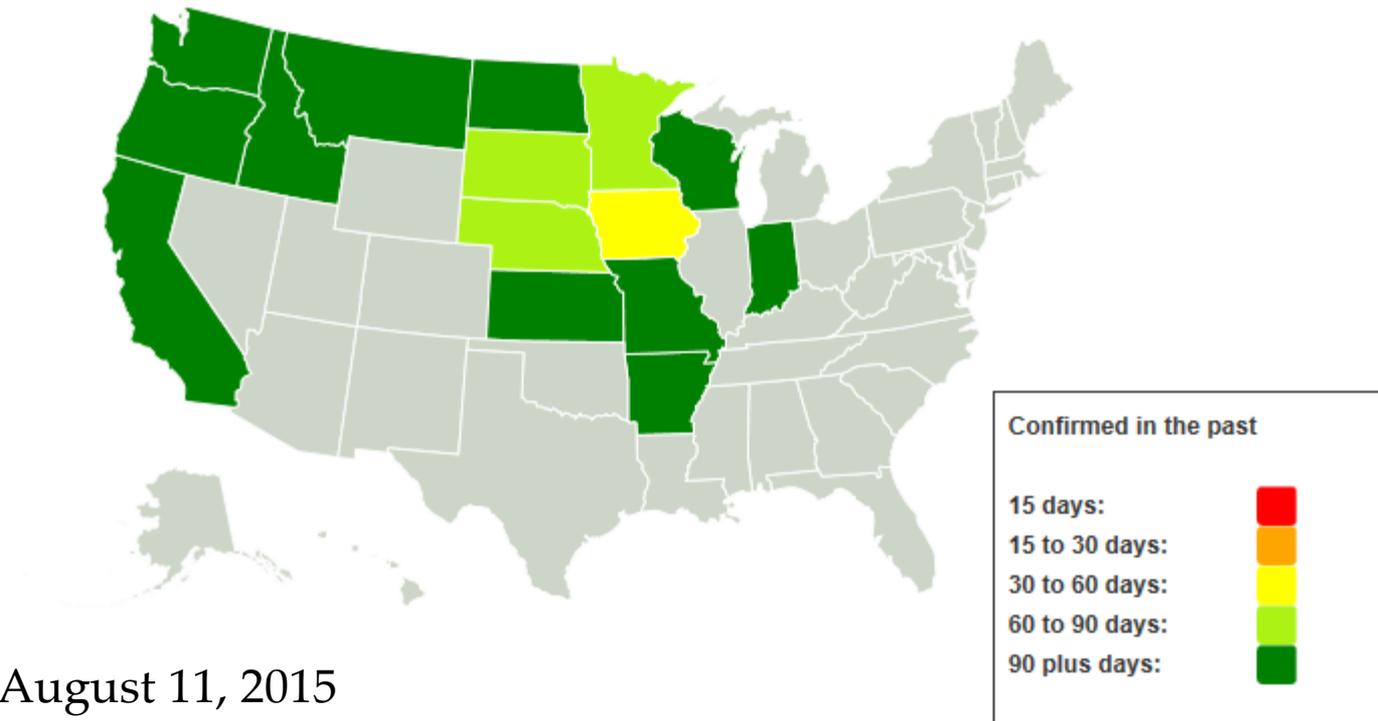
How to combat dry mouth



Breast cancer MRI, successful brains.

Update on Avian Influenza Findings

Poultry Findings Confirmed by USDA's National Veterinary Services Laboratories



223

Detections Reported

48,091,293

Birds Affected

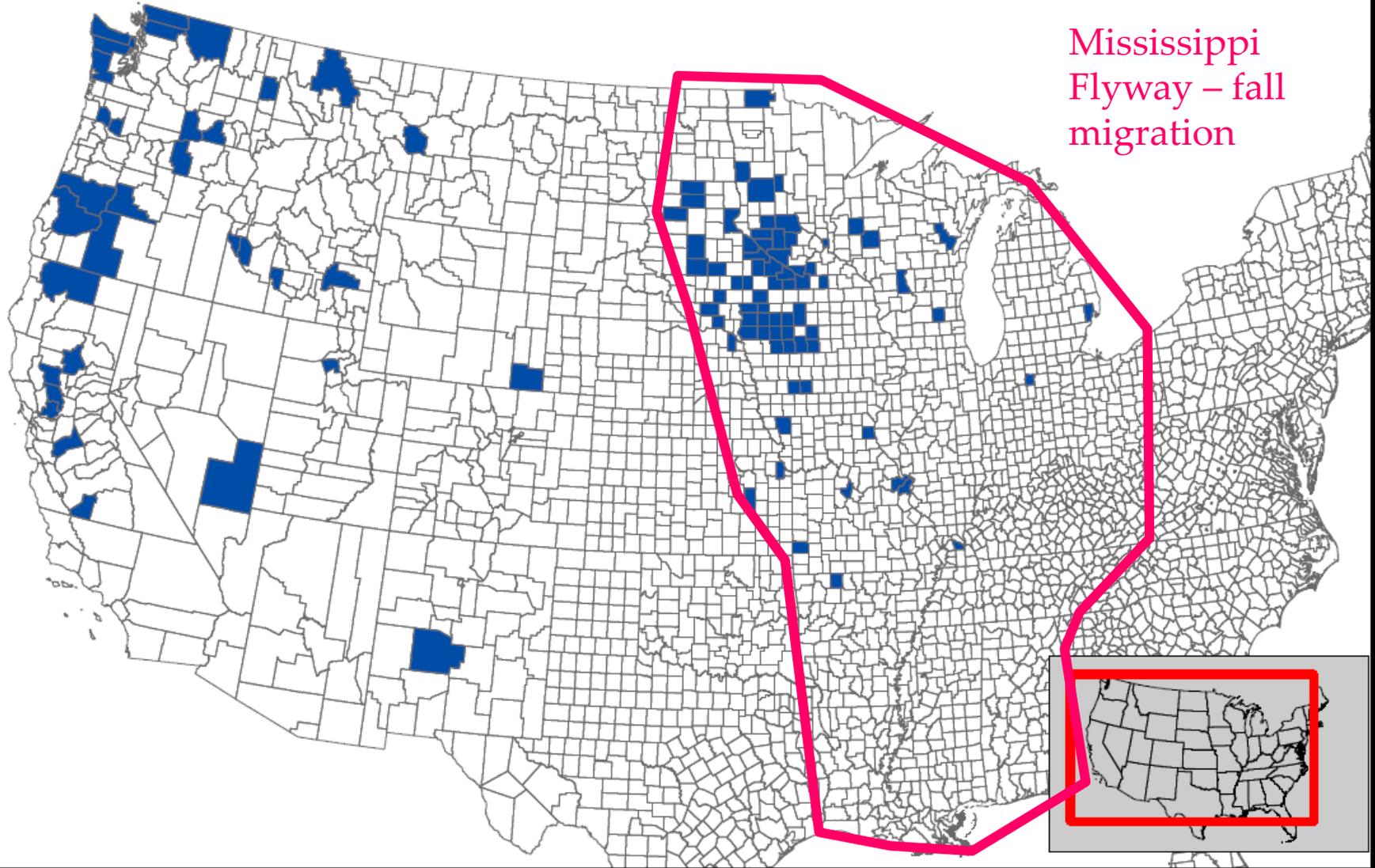
12/19/14

First Detection Reported

6/17/15

Last Detection Reported

Figure 1. All HPAI Detections as of 8/6/2015 (as reported on www.aphis.usda.gov) * one or more detections may have occurred in county



**Prediction for Fall 2015 –
Outbreaks of AI in TN could
be widespread.**

Hmmmmm.....BIOSECURITY.....yep, not a bad idea!



**US Army Corps
of Engineers®**



Solid Waste

State Veterinarian



USDA United States Department of Agriculture
Animal and Plant Health Inspection Service

A large, grey metal barn with a gabled roof. The barn has two large, square, metal ventilation fans mounted on the exterior walls, one on the left and one on the right. In the center of the barn is a large white door. On the door, there is a sign with the text "Where's your Biosecurity policy?". The barn is situated on a grassy field under an overcast sky.

Where's your
Biosecurity
policy?

NRCS POLICY

GM_130-403_H, Homeland Security/Crisis Responsibilities, Subpart H – Biosecurity Preparedness and Response



General Manual

Title 130 - Agency General

Part 403 - Homeland Security/Crisis Responsibilities (Subparts A through G are being updated)

Subpart H – Biosecurity Preparedness and Response

Subpart H – Biosecurity Preparedness and Response

FOR EVERY FARM...

- Discuss biosecurity with the producer.
- Document the discussion in the Con-6 notes.
- Use the appropriate NRCS policy or producer requirements, whichever is stricter.
- Know the site constraints.
- Avoid unannounced visits, if possible.

Assume every farm is a potential risk.....

LEVELS OF BIOSECURITY

ANIMAL PRODUCTION

- Level 1 – no contact with manure
- Level 2 – potential for contact with animal manure but no direct contact with animals
- Level 3 – close contact with animals

At all times, employees will adhere to the applicable biosecurity measure in place.

During periods of heightened concern, before an outbreak or to prevent spread, measures beyond Level 2 and 3 might be required.

LEVEL 1 – VISITS TO FARM OFFICES AND/OR HOME

- ✓ Park the vehicle in a “clean” spot.
- ✓ Wash hands with soap and water or an antibacterial gel before entering and after leaving the premises.

LEVEL 2 – MINIMAL CONTACT WITH MANURE,

LIVESTOCK/POULTRY, OR THEIR HOUSING

- ✓ Park in a clean spot.
- ✓ Clean hands at beginning and end of visit.
- ✓ Put on clean rubber or new plastic boots upon exiting the vehicle.
- ✓ Clean boots, equipment, tires, and wheel wells with water and a brush. Add antibacterial dish detergent to the water.
- ✓ Disinfect boots, equipment, tires, and wheel wells with an approved disinfectant.
- ✓ If wearing disposable overboots, place them in a plastic bag and leave it on the premises for the owner/producer to dispose of them or place them in a designated “dirty” area of your vehicle.

LEVEL 3 – CLOSE CONTACT WITH ANIMALS

Use Level 2 measures plus the following:

- ✓ Pre-plan the needed supplies and clothing for daily visits including, but not limited to, coveralls (cloth or Tyvex); nitrile exam gloves
- ✓ Put on a pair of clean coveralls for each visit.
- ✓ Designate a “clean” area in your vehicle to place clean equipment and boots.
- ✓ Designate a “dirty” area in your vehicle for clothing and equipment that has been used on the farm.
- ✓ Remove coveralls so that they are inside out and place them in a garbage bag.
- ✓ At the end of the day, dispose of all plastic bags that contain dirty supplies in a manner that prevents exposure to other livestock.
- ✓ Shampoo hair and clean under fingernails.
- ✓ Launder all cloth coveralls.

EMPLOYEES WITH LIVESTOCK

- Take extra precautions to avoid bringing a manure source to work and to avoid bringing any manure home to your own animals.
- Change clothes after morning chores and before evening chores.
- Park your farm truck away from your work truck.



CROP PRODUCTION PROTECTION

- Preplan needed supplies for daily visits. (spray bottles, long handles brush, closable plastic bags for plant collection, etc.
- Park vehicles in a clean spot. If the vehicle is contaminated with soil, seeds, OM....scrub the tires and wheel wells with a brush and water before leaving site. Might need to go the car wash. Remember to get the undercarriage.
- Use clean equipment.
- Follow restrictions by the landowner, APHIS, State Vet, etc.
- Clean all equipment, shoes, and clothing of soil, seeds, organic matter, etc. before leaving the site.
- Photos instead of physical collection of unfamiliar plants is recommended. If collection is needed, use airtight closable plastic bags.

ROLES AND RESPONSIBILITIES FOR NRCS STAFF

- The NRCS State Conservationist is responsible for:
 - Ensuring that NRCS staff and State partners know the agency policy.
 - Providing all offices with the required equipment, materials, and information needed to implement this policy.
- The NRCS District Conservationists are responsible for:
 - Ensuring that local staff follows the biosecurity procedures.
 - Ensuring that local partners and staff are familiar with the identified procedures.

OUTBREAK OF AN INFECTIOUS DISEASE

- NRCS employees will not enter affected area except in response to a request from the State Vet or other responsible official.
- In this case, employee will follow biosecurity measures as required by APHIS, State Vet and other responsible officials.

RECENT EMAIL GUIDANCE, 4/23/2015 USDA CHIEF VET

TO: USDA Employees

Due to the ongoing outbreaks of highly pathogenic avian influenza (HPAI), and our strong field office presence in rural areas across the country, it is important to understand how we can all help prevent spread of this disease. USDA employees and partners should take precautions regarding any interactions with all aspects of the poultry industry, especially on farms. Some of the things you can do to protect the health of the poultry industry are:

1. Do not go to a poultry farm unless it is absolutely necessary. If a farm visit is required, only one farm should be visited per day. After the visit, wash the vehicle both outside and inside. Clothes should be washed and shoes or boots cleaned and disinfected.
2. Do not go from plant to plant, or feed mill to feed mill, during any one day. Take the same precautions after visiting a plant or feed mill as noted above for visits to farms.
3. Wear plastic slip-on boots in order to help prevent the spread of HPAI.
4. Wear coveralls and foot gear and follow appropriate disposal protocols in order to prevent the spread of HPAI. If the owner cannot provide coveralls, be sure the clothing you wear is freshly washed.
5. When conducting a review or otherwise working at a complex, do not visit another complex in the area.
6. Never walk on to a farm or into a complex without the owner present.
7. If possible, call ahead to set up an appointment so that you can be escorted on and off the premises.
8. Always follow the owner or company's biosecurity guidance and requirements.

It is our responsibility to be as cautious as possible during these outbreaks. We must show that we understand the need for being responsible for our actions regarding our interactions with the poultry industry. Although USDA may have the authority and the need to visit any complex, plant, feed mill, or farm, we also have a responsibility to ensure that we are helping to prevent spread of this disease.

Thank you very much for all you do for American Agriculture.

Sincerely,

Dr. John R. Clifford
Chief Veterinary Officer
USDA Animal and Plant Health Inspection Service



United States Department of Agriculture

Carcass Disposal Options Decision Tool

Matrix, Decision Loop, Checklist (MLCh)

Developed by USDA APHIS in collaboration with the DHS S&T Depopulation, Disposal, and Decontamination (3D) Program and federal interagency 3D Integrated Product Team (IPT)

Carcass Management Options Matrix

Weighting	Criteria	Off-Site Landfill	Rendering	Off-Site Incineration	Composting	Open Air Burning	On-Site Burial
Most Important (x3)	Public Health Risk (1)	9	9	9	9	6	3
	Biosecurity (2)	6	6	6	3	3	3
	Pathogen Inactivation (3)	3	6	9	6	9	3
	Environmentally Sustainable (4)	9	9	9	9	3	3
Important (x2)	Need to Transport Carcasses Offsite (5)	2	2	2	6	6	6
	Volume Reduction (6)	4	6	6	4	6	4
	Availability(7)	6	4	2	4	4	4
	Throughput (8)	6	6	2	4	4	4
	Speed to Implement (9)	6	4	4	4	4	4
	Public Acceptance (10)	6	4	6	4	2	4
Less Important (x1)	Cost Effectiveness (11)	3	2	1	1	1	3
	Efficiency (12)	3	3	3	2	1	2
	Operability (13)	3	3	3	2	1	3
	Regulatory limitations (14)	2	3	2	2	1	1
	Denial of use (15)	3	2	2	2	2	1
Total Points		71	69	66	62	53	48
Average Score		4.7	4.6	4.4	4.1	3.5	3.2

Matrix Explanation

Green technologies were scored 3 points

Yellow technologies were scored 2 points

Red technologies were scored 1 point

Scores were weighted according to the importance of the criteria.

Scores for each column were totaled then averaged to obtain the ranking

Color Key



Ideal

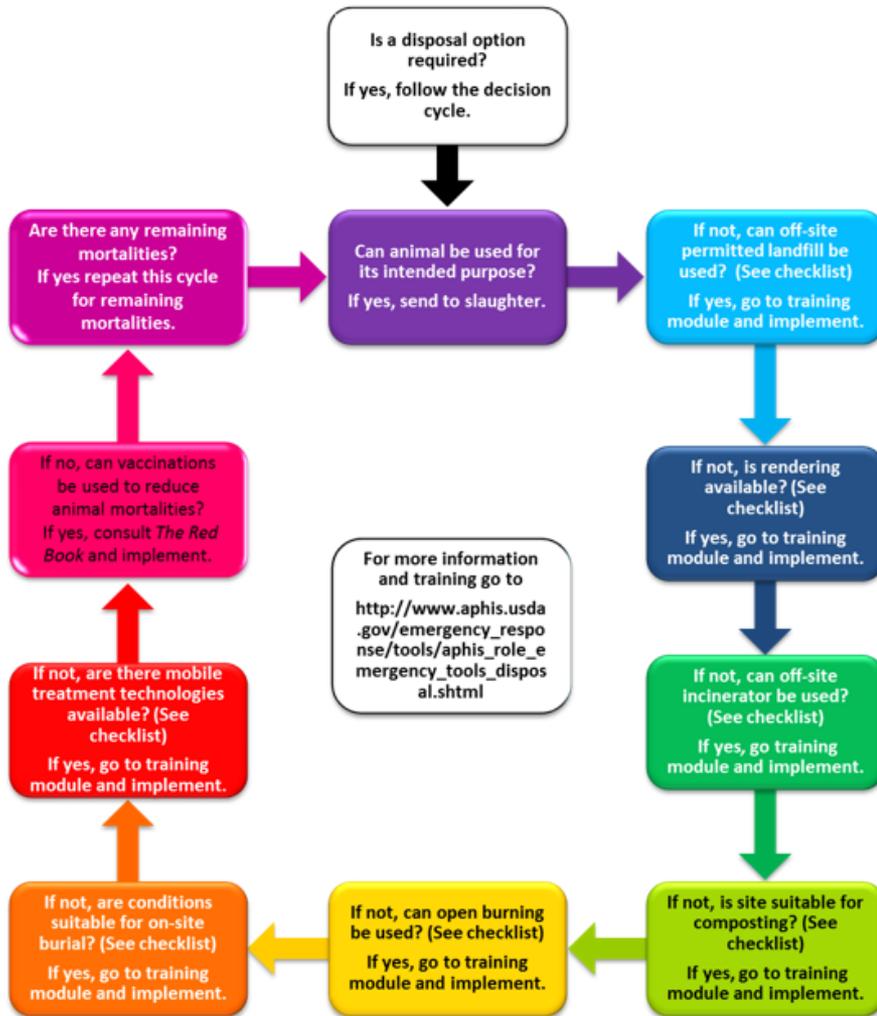


Not Ideal



Not Suitable

Carcass Management Decision Cycle



- Personnel properly trained in the use of this equipment.
- Fire safety equipment also should be readily available.
- If open air burning is an option, see **On-Site Treatment/Burial** training module at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement on-site open air burning. **If not,**

Seventh Option - Is site suitable for on-site burial?

- Are soils suitable (see USDA NRCS online Web Soil Survey)?
- If so, based on the expert written opinion of an experienced groundwater hydrologist, will leachate contaminate groundwater in excess of public health standards?
 - Consider all groundwater pathways including the presence of drain tiles, soil characteristics, depth to groundwater, use of groundwater etc.
- If not, based on the expert written opinion of an experienced environmental engineer, will the burial site create a stability or explosion hazard from production of methane?

- If not, is adequate land available for on-site burial?
- If so, is burial permitted by applicable regulatory authorities? Can permit requirements be met?
- If so, will land owner accept on-site burial, associated environmental liabilities, and potential loss of property value or use?
- If on-site burial is an option, see the **On-Site Treatment/Burial** training module at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement on-site burial. **If not,**

Eighth Option - Are mobile treatment technologies available for your area?

- Contact all appropriate mobile treatment technology vendors.
 - Verify the units are available for deployment to your site.
 - Verify your ability to meet all site/utility requirements.
 - Verify units can be fully disinfected after use.
 - Verify the units have adequate capacity to meet your needs.
 - If the capacity is less than needed, can the carcasses be stored/refrigerated while awaiting disposal?

SO, WHERE ARE WE?

- Get the word out that biosecurity matters.
- Identify/review procedures.
- Train your folks.
- Practice biosecurity.
- Obtain supplies or identify distributors.
- Stay in contact with partners.

Biosecurity for NRCS Employees that own livestock



United States Department of Agriculture

Natural Resources Conservation Service Tennessee NRCS Biosecurity Guide

The transmission of infectious animal diseases, such as foot and mouth, avian influenza, porcine epidemic diarrhea virus (PEDv), Johne's disease, and others threaten the food supply. The spread of plant pests, plant diseases, and noxious weeds can destabilize an abundant, high-quality, and varied food supply. These threats are a national concern requiring the cooperative participation of NRCS and USDA agencies and partners.

We have the responsibility to ensure that we do not carry disease or noxious organisms with us as we go from farm to farm.

Biosecurity Supplies

Ensure that you have the appropriate biosecurity supplies. In the vehicle, keep separate areas for clean items (equipment and boots) and dirty items (clothing and equipment that have been used on the farm and not yet cleaned).



Basic supplies you need to carry include:

- Container with water
- Bucket
- Long handled brush
- Putty knife/scrapper

If you visit animal production sites, you will need to carry these additional supplies, at a minimum:

- Hand sanitizer
- Rubber boots or disposable boots
- Disinfectant
- Garbage bags

Planning the Farm Visit

Make an appointment. Ask the producer before the visit if the farm has any disease, plant pests, or noxious weed issues. Postpone your visit if there is an active outbreak.

Know the biosecurity protocols the farm might already have in place. Follow the farm's protocol if more stringent than NRCS protocol. Some farms require a minimum "down time" between visits with other farms, or may want you to use their equipment and clothing while in close contact with the animals on site.

If possible, schedule work to minimize the need for frequent cleaning and disinfecting.

- For animal production sites, try to visit when livestock are not present.
- For crop production sites, try to visit when crops are not growing.

Think about the purpose of the visit. Can you accomplish the purpose by just visiting the farm office or are you doing something for which you must come into contact with animals or crop fields?

When arranging your day, save for last any site visit that will require washing the vehicle afterwards, to minimize trips back to town.

(more...)



Natural Resources Conservation Service

ANIMAL PRODUCTION SITES

NRCS policy describes three levels of biosecurity for visits to livestock farms:

Level 1: office or home visits only;

Level 2: where minimal contact with animal manure, livestock, or their housing is unavoidable;

Level 3: where there will be close contact with livestock.

Most NRCS work will be at Levels 1 or 2. *Try to avoid situations where Level 3 biosecurity protocol is required.* This guide does not cover Level 3 supplies and protocols. Find more information in the General Manual, Section 130, Part 403.84.

At the Farm

- Park in the designated parking area. If an area is not designated, park away from animal areas, manure, mud, or runoff. In crop production areas, park to avoid contact with soil, seeds, or diseases if possible.
- Keep windows of vehicle closed to prevent pests from entering the vehicle.
- Wash your hands or use hand sanitizer before entering the premises.
- Use only clean equipment and clothing.

Where contact with animals or manure is unavoidable, add this step:

- Put on clean rubber or plastic boots prior to exiting the vehicle.

After the Visit is Complete

- Clean all dirt and manure from equipment and rubber boots with a brush and water.
- Place disposable dirty items in a garbage bag. Dispose on site, or place in the dirty area of vehicle for later disposal.
- Clean dirt and manure from equipment and boots.
- If the vehicle (truck, UTV/ATV, trailer) came into contact with dirt or manure, clean dirt and manure from the tires and wheel wells before visiting another farm.

- If the vehicle cannot be cleaned in the field, take it to a car wash before visiting another farm. Clean the undercarriage as well.
- Disinfect any equipment and boots that required cleaning.
- Disinfect the tires and wheel wells of any vehicle that required cleaning.
- Wash your hands or use hand sanitizer.

CROP PRODUCTION SITES

At the Farm

- Park to avoid contact with soil, seeds, or diseases if possible.
- Make sure your equipment is clean and free of soil, seeds and organic matter.

After the Visit is Complete

- Clean all equipment, shoes, and clothing of soil, seeds, and organic matter before leaving the site.
- If the vehicle is contaminated with soil, seeds, or organic matter, scrub the tires and wheel wells with a brush and water before leaving the site.
- If the vehicle cannot be cleaned in the field, take it to a car wash before visiting another farm. Clean the undercarriage as well.

BEFORE COMING TO WORK

For those who farm outside of NRCS work time, take extra precautions. Make sure you avoid bringing harmful agents to your client's farm or taking agents from a client's farm to your own. Ensure your clothing is clean when you come to work, and before you begin work on your own farm. Consider having separate NRCS and home farm work clothes and boots.

This also applies if you visit a farm on your own time; visit a fair, livestock show or sale barn; hunt, hike, or otherwise come in contact with potential harmful agents.

Rule
coop

Cloth

Foot

Vehicle

Rule
When

Boots

Vehicle

unanticipated farm visit or contaminated field site.

- Keep the MSDS sheet for the disinfectant in the vehicle.

NRCS-TN'S APPROACH TO SUPPLIES





United States Department of Agriculture

USDA Homepage

AVIAN INFLUENZA

http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=avian_influenza.html



United States Department of Agriculture

Animal and Plant Health Inspection Service

<http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/emergencyresponse>

Don't Be Personally Liable.....

Just Kidding

Wednesday, August 12, 2015

Gov. Employ

Government employee in Tennessee disregarded a written biosecurity policy and caused the death of



“if there is indication that High Path AI is moving toward TN or TN has a case, business as usual is over, no visits to commercial poultry facilities. In preparation, all biosecurity procedures should be reviewed now prior to fall. No one wants to be accused of tracking AI onto a farm.”

Dr. Charles Hatcher, DVM
State Veterinarian, TN
August 11, 2015

POSITIVE ATTITUDES AND GOOD HABITS

**will reduce the potential for
disease transmission. You
can help reduce threats to
biosecurity by:**

CONFIDENCE

“I won’t be a disease
carrier.”

DETERMINATION

“I am going to do it.”

CAREFULNESS

“Give that spot an extra dose.”

CONSISTENCY

“This is a habit now.”

PATIENCE

“This doesn’t take too long now that I’m
used to it.”

KNOWLEDGE

“I know how to do it.”

RESPECT

“It protects the client’s livelihood.”

PROFESSIONALISM

“It protects our reputation.”

PREPAREDNESS

“Let me check my list.”



**Thank you for
doing your part in
Biosecurity.**

QUESTIONS

NRCS Tennessee Biosecurity Supplies and Usage Information – August 2015

1. Hand sanitizer – Should be kept in NRCS vehicles and used before and after visiting a farm.
2. Putty Knives – Should be kept in NRCS vehicles and used to remove organic matter, manure, etc. from boots, equipment, tires, etc. This should be done to the extent possible, prior to the application of any disinfectant.
3. Long Handled Brush – Should be kept in NRCS vehicles and be used to remove organic matter, manure, etc. from boots, equipment, tires, etc. This should be done to the extent possible, prior to the application of any disinfectant.
4. Professional Lysol Disinfectant Spray - Should be kept in NRCS vehicles and be used to disinfect areas such as vehicle floor mats, boots, gas and brake pedals, etc. To the extent possible, be sure to remove any organic debris or manure prior to applying the disinfectant.
5. Virkon S Tablets and Pump Sprayers –
 - a. Virkon S tablets are a broad spectrum disinfectant that will be used in conjunction with the 1 gallon pump sprayers. Upon distribution, please ensure that a manufacture supplied information pamphlet accompanies all bottles. Always follow manufacture recommendation and guidelines.
 - b. Consider your plans for the week (how many animal farms am I visiting, etc.) when deciding whether to, or how much disinfectant to prepare. Note: Effective life of the post-mixed product is 7 days. If mixed product remains after 7 days, deplete the remaining mixture according to normal use procedures (i.e. treat normally contaminated areas until gone). Do not dispose into a sewer system, dump on the ground or place in any natural water source.
 - c. NRCS will use a 1% solution. This equates to 8 tablets per gallon of water, 4 tablets per half gallon of water, or 1 tablet per pint of water. Do not allow concentrated tablets to contact bare skin.
 - d. Virkon S mixture should be used to disinfect areas such as tires and rims, wheel wells, equipment, boots, etc. To the extent possible, be sure to remove any organic debris or manure prior to applying the disinfectant. Try to allow 10 minutes of contact time between the contaminated area and the disinfectant.
 - e. Virkon S tablets are to be stored in a cool dry place per label instructions.

Distribution guidance for the Fall 2015 supply order: (each Area might differ slightly)

Hand Sanitizer – 1 box of 24 per NRCS office.

Putty Knives – 1 per NRCS vehicle

Long Handled Brush – 1 per NRCS vehicle

Professional Lysol Disinfectant Spray – 2 cans per vehicle

1 Gallon Pump Sprayer – 1 per NRCS vehicle

Virkon S Tablets – Four (4) 9oz bottles per NRCS office



Natural Resources Conservation Service



SUPPLY LIST

- ✓ Hand sanitizer
- ✓ Rubber boots or disposable boots
- ✓ Long handled brush
- ✓ Putty knife/scrapper
- ✓ Bucket
- ✓ Water jug
- ✓ Disinfectant
- ✓ Garbage bags
- ✓ Hose w/spray nozzle *(or local car wash)*

BIOSECURITY BASICS

- 1** Do not bring pathogens to the farm. If you also farm, ensure you and your clothing are clean when coming to work.
- 2** Do not take pathogens away from the farm.
- 3** Prevent the transport of diseases, noxious and invasive plants, and pest plants.

Helping People Help the Land.

USDA is an equal opportunity provider and employer.

Natural Resources Conservation Service



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BIOSECURITY BASICS

Plan your farm visit

- Make an appointment. Ask the producer if they have any farm-specific biosecurity protocols in place or if there's a disease outbreak. Plan to follow the producer's biosecurity measures if more stringent.
- Plan your biosecurity procedures to match the purpose of the visit. Have adequate supplies with you.

Think "Clean to Dirty"

- If possible, schedule work to minimize the need for cleaning and disinfecting.
- Avoid visits to farms with known disease issues.

ANIMAL PRODUCTION SITES

(* = Additional for Level 2)

Arriving at the farm

- Park away from animal areas and out of any runoff from animal areas.
- Wash hands with soap and water or hand sanitizer.
- Put on clean boots or disposable boots.*
- Minimize animal contact.*

At the completion of visit

- Place disposable items in a garbage bag. Dispose appropriately.*
- Clean dirt and manure from rubber boots and equipment.*
- If vehicle (truck, UTV, ATV, trailer, etc) comes into contact with dirt or manure, clean tires and wheel wells with water and a brush, or use a car wash before visiting another site.*
- Disinfect any items that required cleaning, following the disinfectant directions.*
- Wash hands with soap and water or hand sanitizer.

CROP PRODUCTION SITES

Arriving at the farm

- Park away from potential infected sites.
- Make sure your equipment is clean and free of soil, seeds and organic matter.

At the completion of visit

- Clean all equipment, shoes and clothing of soil, seeds or organic matter before leaving the site.
- If vehicle (truck, UTV, ATV, trailer, etc) is contaminated with soil, seeds or organic matter, clean tires and wheel wells with water and a brush, or use a car wash before visiting another site.

Natural Resources Conservation Service

www.tn.nrcs.usda.gov

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Natural Resources Conservation Service

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Natural Resources Conservation Service Tennessee NRCS Biosecurity Guide

The transmission of infectious animal diseases, such as foot and mouth, avian influenza, porcine epidemic diarrhea virus (PEDv), Johne’s disease, and others threaten the food supply. The spread of plant pests, plant diseases, and noxious weeds can destabilize an abundant, high-quality, and varied food supply. These threats are a national concern requiring the cooperative participation of NRCS and USDA agencies and partners.

We have the responsibility to ensure that we do not carry disease or noxious organisms with us as we go from farm to farm.

Biosecurity Supplies

Ensure that you have the appropriate biosecurity supplies. In the vehicle, keep separate areas for clean items (equipment and boots) and dirty items (clothing and equipment that have been used on the farm and not yet cleaned).



Basic supplies you need to carry include:

- Container with water
- Bucket
- Long handled brush
- Putty knife/scrapper

If you visit animal production sites, you will need to carry these additional supplies, at a minimum:

- Hand sanitizer
- Rubber boots or disposable boots
- Disinfectant
- Garbage bags

Planning the Farm Visit

Make an appointment. Ask the producer before the visit if the farm has any disease, plant pests, or noxious weed issues. Postpone your visit if there is an active outbreak.

Know the biosecurity protocols the farm might already have in place. Follow the farm’s protocol if more stringent than NRCS protocol. Some farms require a minimum “down time” between visits with other farms, or may want you to use their equipment and clothing while in close contact with the animals on site.

If possible, schedule work to minimize the need for frequent cleaning and disinfecting.

- For animal production sites, try to visit when livestock are not present.
- For crop production sites, try to visit when crops are not growing.

Think about the purpose of the visit. Can you accomplish the purpose by just visiting the farm office or are you doing something for which you must come into contact with animals or crop fields?

When arranging your day, save for last any site visit that will require washing the vehicle afterwards, to minimize trips back to town.

(more...)



ANIMAL PRODUCTION SITES

NRCS policy describes three levels of biosecurity for visits to livestock farms:

Level 1: office or home visits only;

Level 2: where minimal contact with animal manure, livestock, or their housing is unavoidable;

Level 3: where there will be close contact with livestock.

Most NRCS work will be at Levels 1 or 2. *Try to avoid situations where Level 3 biosecurity protocol is required.* This guide does not cover Level 3 supplies and protocols. Find more information in the General Manual, Section 130, Part 403.84.

At the Farm

- Park in the designated parking area. If an area is not designated, park away from animal areas, manure, mud, or runoff. In crop production areas, park to avoid contact with soil, seeds, or diseases if possible.
- Keep windows of vehicle closed to prevent pests from entering the vehicle.
- Wash your hands or use hand sanitizer before entering the premises.
- Use only clean equipment and clothing.

Where contact with animals or manure is unavoidable, add this step:

- Put on clean rubber or plastic boots prior to exiting the vehicle.

After the Visit is Complete

- Clean all dirt and manure from equipment and rubber boots with a brush and water.
- Place disposable dirty items in a garbage bag. Dispose on site, or place in the dirty area of vehicle for later disposal.
- Clean dirt and manure from equipment and boots.
- If the vehicle (truck, UTV/ATV, trailer) came into contact with dirt or manure, clean dirt and manure from the tires and wheel wells before visiting another farm.

- If the vehicle cannot be cleaned in the field, take it to a car wash before visiting another farm. Clean the undercarriage as well.
- Disinfect any equipment and boots that required cleaning.
- Disinfect the tires and wheel wells of any vehicle that required cleaning.
- Wash your hands or use hand sanitizer.

CROP PRODUCTION SITES

At the Farm

- Park to avoid contact with soil, seeds, or diseases if possible.
- Make sure your equipment is clean and free of soil, seeds and organic matter.

After the Visit is Complete

- Clean all equipment, shoes, and clothing of soil, seeds, and organic matter before leaving the site.
- If the vehicle is contaminated with soil, seeds, or organic matter, scrub the tires and wheel wells with a brush and water before leaving the site.
- If the vehicle cannot be cleaned in the field, take it to a car wash before visiting another farm. Clean the undercarriage as well.

BEFORE COMING TO WORK

For those who farm outside of NRCS work time, take extra precautions. Make sure you avoid bringing harmful agents to your client's farm or taking agents from a client's farm to your own. Ensure your clothing is clean when you come to work, and before you begin work on your own farm. Consider having separate NRCS and home farm work clothes and boots.

This also applies if you visit a farm on your own time; visit a fair, livestock show or sale barn; hunt, hike, or otherwise come in contact with potential harmful agents.



Biosecurity for NRCS Employees that own livestock

Rule 1. Bring no pathogens onto the NRCS cooperator's farm. Arrive with clean hands and boots.

Clothes and Personal Hygiene:

- If home livestock chores are done before work, clean-up and change clothes after chores.
- Wear freshly laundered clothes to work.

Footwear:

- Keep shoes worn while working for NRCS away from the home livestock operation. Consider keeping these shoes at the office to prevent contact with personal livestock and their manure and feed.
- Footwear chosen for NRCS work should have soles that are easily cleanable. All accumulated organic material must be cleaned from shoes to enable the disinfectant to be effective for biosecurity.

Vehicles:

- Do not take the government vehicle to your home.
- Do not use your personal vehicle for NRCS farm visits.

Rule 2. Bring no pathogens away from the field visit. When the visit is done, clean up before leaving the farm.

Boots, Equipment, and Vehicles (including ATVs):

- Clean mud and manure off of boots, equipment, tires, wheel wells, and undercarriages. Put antibacterial dish detergent in the water for added protection.
- Apply the Virkon®-S disinfectant liberally to all contaminated surfaces. Try for a minimum contact time of one minute.

Vehicles:

- Keep supplies and tools in the government vehicle at all times so you can clean and disinfect equipment and footwear in the event of an unanticipated farm visit or contaminated field site.
- Keep the MSDS sheet for the disinfectant in the vehicle.

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Rule 3 Prevent the transport of disease. Respect or assume access restrictions since vehicles are difficult to disinfect.

Office:

- Notify your supervisor if your personal livestock show signs of illness or disease which may interfere with your ability to safely perform NRCS duties.
- Contact your personal veterinarian to determine the cause of any sick livestock.
- Inform your supervisor of this information if NRCS duties need to be reassigned or delayed to prevent disease transmission to NRCS livestock cooperators.

Vehicles:

- When making a visit to a farm with livestock, park the government vehicle in a designated parking area or away from contact with animals and manure, if possible.
- Avoid cross-contamination. Keep the personal vehicle used for livestock activity at home, or if used to go to work, park it in an area at work that is away from government vehicles used for farm visits. When at home, park the vehicle used to drive to work in an area away from livestock activity.
- Keep your personal vehicle clean and free of potential disease vectors such as weed seeds, diseased plant parts, and manure if you rely on your farm truck for transportation to work.

Home:

If your work involved a visit to a livestock operation:

- Wash your hands before leaving work or before starting home livestock chores.
- Change out of work clothes after work and before starting home livestock chores.
- Consider keeping supplies and tools in your personal vehicle to clean and disinfect equipment and footwear.

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- Consider keeping supplies and tools in your personal vehicle to clean and disinfect equipment and footwear.



WASH YOUR HANDS

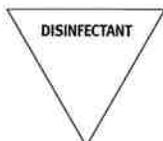
- **Wet hands and forearms with warm water**
- **Add at least 3-5 mls of soap (the size of an olive)**
- **Lather up and vigorously scrub each side of the hands beyond the wrist for 10-30 seconds, cleaning under rings and scrubbing dirty fingernails**
- **Rinse under warm water until no soap residue remains**
- **Turn off running water with a paper towel, not bare hands**
- **Dry hands with paper towel or hot air dryer**





Virkon® S

DISINFECTANT AND VIRUCIDE



Tablet and Powder Form

*Effective against Viruses
Bacteria, Fungi*

ACTIVE INGREDIENTS:

Potassium peroxymonosulfate 21.41%

Sodium chloride 1.50%

OTHER INGREDIENTS 77.09%

TOTAL INGREDIENTS: 100.00%

Equivalent to 9.75% Available Chlorine

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 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

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 further treatment advice.

IF SWALLOWED: Call 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.

Have the product container or label with you when calling a Poison Control Center or doctor or going for treatment.

For 24-hour emergency information on this product, call 1-800-441-3637 (US & Canada) or 1-302-774-1139 (all other areas).

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

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

See Inside Booklet For Additional Precautionary Statements

US PATENT NO. # 4,822,512
EPA REGISTRATION NO. 71654-6

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER. Powder is corrosive. Causes irreversible eye damage or skin burns. Harmful if swallowed or absorbed through the skin. Do not get in eyes, on skin or on clothing. Wear goggles (or face shield). Wear protective clothing (long sleeve shirt and long pants, socks plus shoes and chemical resistant gloves such as water proof gloves). Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash clothing before reuse. **Corrosive statement refers to powder only not in use-diluted solution.**

ENVIRONMENTAL HAZARDS:

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.

BROAD SPECTRUM DISINFECTANT:

Virkon®S is effective against numerous microorganisms affecting animals: viruses, gram positive and gram negative bacteria, fungi (molds and yeasts – Not Approved for this use in California), and mycoplasma.

Efficacy of the 1% solution against bacteria and viruses was determined in the presence of 400 ppm (200 ppm in California) AOAC hard water and 5% organic material in most cases. The exceptions are noted with qualifiers, e.g., "no hardwater," "no soil load," and "use 2% solution".

This product has demonstrated effectiveness against influenza A virus and is expected to inactivate all influenza A viruses including Pandemic 2009 H1N1 influenza A virus.

STORAGE AND DISPOSAL: Do not contaminate water, food, or feed by storage and disposal.

PESTICIDE STORAGE: For pails, jugs, bottles: Store in a cool dry place in tightly closed container. Keep out of reach of children. Always replace lid after use. Retain dessicant canister with product during storage. Do not mix this product with other chemicals.

For sachet, pouch, packet, bag: Store in a cool dry place. Keep out of reach of children. Retain dessicant canister with product during storage. Do not mix this product with other chemicals.

For spray bottle with in-use solution: Store in a cool dry place. Keep out of reach of children. Do not mix this product with other chemicals.

PESTICIDE DISPOSAL: Pesticide wastes may be 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 the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

EFFECTIVE AGAINST THE FOLLOWING PATHOGENS: ANIMAL AND ZOONOTIC PATHOGENS

BACTERIA

Actinobacillus pleuropneumoniae

Bacillus cereus

Brucella abortus

Campylobacter jejuni

Clostridium perfringens

Dermatophilus congolensis

Escherichia coli
Klebsiella pneumoniae
Mycoplasma gallisepticum
Mycoplasma hyopneumoniae
Pasteurella multocida
Pseudomonas aeruginosa
Salmonella enterica
Salmonella typhimurium
Shigella sonnei
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus pyogenes
Streptococcus suis

Not approved in California for use against the following bacteria:

Bordetella avium
Bordetella bronchiseptica
Fistulous withers (Poll Evil)
Haemophilus somnus
Helicobacter pylori
Listeria monocytogenes
Moraxella bovis (Pink Eye)
Mycoplasma mycoides
Pseudomonas mallei (Glanders)
Pseudomonas vulgaris
Streptococcus equi (Strangles)
Taylorella equigenitalis
Treponema hyodysenteriae

VIRUSES

Avian Influenza Virus
Avian Laryngotracheitis Virus
Bovine Adenovirus Type 4
Canine Adenovirus (Canine Hepatitis)
Canine Parvovirus
Equine Herpes Virus (Type 1)
Equine Herpes Virus (Type 3)
Equine Influenza Virus (Type A)
Feline Calicivirus
Feline Panleukopenia Virus
Feline Rhinotracheitis Virus
Newcastle Disease Virus
Simian virus (SV40 Virus)

Not approved in California for use against the following viruses:

Adenovirus Pneumonia
African Horse Sickness Virus
African Swine Fever Virus
(tested with 1% soil load and 342 ppm hard water)
Bovine Polyoma Virus
Bovine Pseudocowpox Virus

Bovine Viral Diarrhea Virus (no hard water)
Calf Rotavirus (no hard water)
Canine Coronavirus
Canine Parainfluenza Virus
Chicken Anemia Virus
Coital Exanthema Virus
Distemper Virus
Duck Adenovirus (no hard water)
Duck Enteritis Virus
Egg Drop Syndrome Adenovirus
Equine Infectious Anemia Virus (Swamp Fever)
Equine Arteritis Virus (no hard water)
Equine Contagious Abortion Virus
Equine Papillomatosis Virus
Equine Influenza Virus (The Cough)
Feline Herpes Virus
Feline Infectious Peritonitis Virus
Feline Parvovirus
Foot and Mouth Disease Virus
Hog Cholera Virus
Infectious Bronchitis Virus
Infectious Bursal Disease Virus
Infectious Canine Hepatitis Virus
Infective Bovine Rhinotracheitis Virus
(no hard water)
Leptospira Canicola Virus
Maedi-Visna Virus
Marek's Disease Virus
Mouse Parvovirus
PCV2 Virus (PMWS)
Porcine Parvovirus
Porcine Reproductive and Respiratory Syndrome Virus (PRRS)
Pseudorabies Virus (Aujeszky's Disease)
(no hard water)
Rotaviral Diarrhea Virus
Swine Influenza Virus
Swine Vesicular Disease Virus
Transmissible Gastroenteritis Virus (TGE)
(no hard water)
Turkey Herpes Virus (no hard water)
Turkey Rhinotracheitis Virus
Vesicular Stomatitis Virus

FUNGI

Trichophyton mentagrophytes (2%)

Not approved in California for use against the following fungi:

Aspergillus fumigatus
Fusarium moniliforme
Microsporium canis

Trichophyton spp. (Ringworm)
Trichophyton spp. (Mud Fever)

PLANT PATHOGENS

Not approved in California for use against plant pathogens:

- Alternaria solani*
- Botrytis cinera*
- Colletotrichum coccodes*
- Didymella bryoniae*
- Fusarium oxysporum*
- Fusarium solani*
- Penicillium oxalicum*
- Phomopsis sclerotoides*
- Pyrenochaeta lycopersici*
- Pythium aphanidermatum*
- Rhizoctonia solani*
- Sclerotinia sclerotiorum*
- Thielaviopsis basicola*
- Verticillium dahliae*
- Xanthomonas axonopodis*

VIRKON®S DILUTION CHART

Fill container with desired amount of water and add Virkon®S powder or tablet(s) to achieve solution concentration. For a 1% solution, add one (1) tablet to one pint of water or one sachet to one gallon of water.

Solutions are stable for 7 days. Do not soak metal objects in Virkon®S for long periods – 10 minutes is maximum necessary contact time. One gallon of solution is sufficient to treat 135 square feet.

*The 0.5% solution is currently not approved for use in California.

Quantity of Water	0.5% Solution*	1% Solution	2% Solution
1 Gallon		1 Sachet	2 Sachets
2 Gallons	1 Sachet	2 Sachets	4 Sachets

Quantity of Water	0.5% Solution*	1% Solution	2% Solution
1 Pint		1 Tablet	2 Tablets
1 Gallon	4 Tablets	8 Tablets	16 Tablets

DIRECTIONS FOR USE

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

**GENERAL INSTRUCTIONS –
POULTRY AND FARM PREMISES:**

1. Remove all poultry or other animals and feeds from premises, trucks or other vehicles, coops, crates or other enclosures.
2. Remove all litter droppings and manure from floors, walls and surfaces of barns pens, stall, chutes and other facilities and fixtures occupied or traversed by poultry or other animals.
3. Empty all troughs, racks, and other feeding and watering appliances.
4. Thoroughly clean all surfaces with soap or detergent and rinse with water.
5. Saturate surfaces with the disinfecting solution for a period of 10 minutes.
6. 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.
7. Ventilate buildings, cars, boats, coops, and other closed spaces. Do not house poultry or livestock or employ equipment until treatment has been absorbed, set, or dried.
8. Thoroughly scrub treated feed racks, mangers, troughs, automatic feeders, fountains, and waterers with soap or detergent and rinse with potable water before reuse.

POULTRY PRODUCTION AND RATITE PRODUCTION CONTROLS:

Viruses of Newcastle Disease, Avian Laryngotracheitis and Avian Influenza; Bacteria of *Streptococcus pyogenes*, *Klebsiella pneumoniae*, *Escherichia coli*, *Salmonella typhimurium*, *Salmonella enterica*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Staphylococcus epidermidis* and *Mycoplasma gallisepticum*. *Not approved in California for use against the following organisms:* Viruses of Infectious Bursal Disease, Infectious Bronchitis Virus, Marek's Disease, Egg Drop Syndrome, Turkey Herpes Virus, Duck Viral Enteritis; FUNGI (molds and yeasts, *not approved for use in California*), *Aspergillus flavus*, Fungi of *Aspergillus fumigatus* and Bacteria of *Bordetella avium*, *Helicobacter pylori*.

HATCHERIES: Virkon®S at 1% solution can be used for cleaning and disinfecting hatchers, setters, evaporative coolers, humidifying systems, ceiling fans, chicken houses, transfer trucks, trays, and plastic chick boxes. Saturate surfaces with a 1% solution of Virkon®S with a cloth, mop, mechanical spray, or sponge for a period of 10 minutes. Allow surfaces to air dry. Rinse waterers and feeders with potable water before reuse.

BROILER/BREEDER HOUSES: Follow General Instructions to remove poultry and preclean area to be treated. Spray floors and walls with Virkon®S at 1% solution. Thoroughly wash waterers and feeders with a 1% solution of Virkon®S. After contact for 10 minutes, rinse with potable water. Do not house poultry or use equipment until treatment has dried.

PROCESSING PLANTS: Spray Virkon®S at 1% solution to disinfect and clean walls, ceilings and floors. Saturate surfaces for a period of 10 minutes. Allow surfaces to air dry.

SWINE PRODUCTION

CONTROLS: Bacteria of; *Actinobacillus Pleuropneumoniae* and *Clostridium perfringens*; Fungi of *Trichophyton mentragrophytes* (2%). *Not approved in California for use against the following organisms:* Viruses of Hog Cholera, Swine influenza, Porcine Parvovirus, Porcine Reproductive and Respiratory Syndrome Virus (PRRS); Pseudorabies, Rotoviral Diarrhea, African Swine Fever, Fungi of *Fusarium moniliforme*, Foot and Mouth Disease and Bacteria of *Treponema hyodysenteriae*.

Follow General Instructions to remove swine and preclean area to be treated. Use a 1% solution of Virkon®S Disinfectant and Virucide for cleaning and disinfecting farrowing units, nurseries, finisher houses, processing plants, and agricultural production equipment such as trucks, waterproof footwear (such as rubber boots), and associated livestock equipment and instruments. Saturate surfaces with a 1% solution of Virkon®S with a cloth, mop, mechanical spray, or sponge for a period of 10 minutes. Allow surfaces to air dry. Rinse waterers and feeders with potable water before reuse.

EQUINE PRODUCTION

BROAD SPECTRUM EQUINE DISINFECTANT/ DETERGENT/WASH FOR CLEANING AND DISINFECTING STABLES AND EQUIPMENT

CONTROLS Viruses of Newcastle Equine herpes virus Type 1 and Type 3 and Equine Influenza. Bacteria of; *Brucella abortus*, *Clostridium perfringens*, *Dermatophilus congolensis* (at 2%), *Pseudomonas aeruginosa*, *Salmonella typhimurium* and *Staphylococcus aureus*. Fungi of *Trichophyton mentragrophytes* (at 2%). *Not approved in California for use against the following organisms:* Fungi of *Fusarium moniliforme*. Viruses of African Horse Sickness, Equine Viral Arteritis (Pink Eye), Coital Exanthema, Myeloencephalopathy, Rhinopneumonitis, Equine Contagious Abortion, Equine Papillomatosis, Equine Infectious anemia (Swamp Fever), Adenovirus Pneumonia, Equine Influenza (The Cough) and Rhinitis; Bacteria of *Clostridial Diarrhea*, *Fistulous Withers* (Poll Evil), *Taylorella equigenitalis*, *Bordetella bronchiseptica*, *Streptococcus equi* (Strangles) and *Pseudomonas mallei* (Glanders); Fungi of *Dermatophytosis* (Ringworm) and *Dermatophytosis* (Mud Fever).

APPLICATIONS: For cleaning and disinfecting all hard, non-porous surfaces, equipment, utensils and instruments in Veterinary practices, kennels, stables, catteries, etc.

USES: Stables, Horse Boxes, Box Stalls, Tack, Equipment, and Feed Rooms:

Follow general instructions to remove animals from area to be treated. Thoroughly clean and dry [dry clean] surfaces, then wash the area manually or with pressure washer with a 1% Virkon®S Disinfectant and Virucide* solution, saturating surfaces for a period of 10 minutes. Allow surfaces to air dry. Rinse waterers and feeders with potable water before reuse.

To Clean Blankets, Saddle Pads and Rugs: *Not an approved use in California:* Using a 1% solution of Virkon®S, Shampoo by hand or spray lightly with a hand-sprayer and leave to dry. Shake or vacuum to remove residue.

BOVINE PRODUCTION

CONTROLS: Bovine Adenovirus Type 4; Fungi of Trichophyton mentragrophytes(2%). *Not approved in California for use against the following organisms:* Bacteria of Moraxella bovis; Fungi of Fusarium moniliforme. Viruses of Calf rotavirus, Infectious Bovine Rhinotracheitis, Pseudorabies, Foot and Mouth Disease and Bacteria of Haemophilus somnus.

Follow General Instructions to remove livestock and pre-clean area to be treated. Use a 1% solution of Virkon®S Disinfectant and Virucide* to clean and disinfect areas associated with bovine housing stabling, hospital quarantine pens, feedlot facilities, and agricultural production equipment: such as trucks, water-proof footwear (such as rubber boots), and associated livestock equipment and instruments. Saturate surfaces with a 1% solution of Virkon®S with a cloth, mop, mechanical spray, or sponge for a period of 10 minutes. Allow surfaces to air dry. Rinse waterers and feeders with potable water before reuse.

COMPANION ANIMALS

CONTROLS: Viruses of Canine Parvovirus and Feline calicivirus; Bacteria of Staphylococcus aureus, Streptococcus pyogenes, Klebsiella pneumoniae, and Pseudomonas aeruginosa. Fungi of Trichophyton mentragrophytes (2%). *Not approved in California for use against the following organisms:* Viruses of Distemper, Leptospira canicola, Feline parvovirus, Feline herpes; Fungi of Microsporum canis.

APPLICATION: Use a 1% solution of Virkon®S Disinfectant and Virucide* as a "one step" cleaning and disinfecting procedure (Remove Gross filth and heavy soil deposits before application of the disinfecting/cleaning solution) for all surfaces, equipment, instruments, utensils and cages, caging systems, within or associated with Veterinary Medical Hospitals, animal infectious disease wards, quarantine areas, Humane Society facilities, laboratory animal quarters, grooming and boarding facilities, kennels, catteries and animal transportation vehicles. Saturate surfaces with a 1% solution of Virkon®S with a cloth, mop, mechanical spray, or sponge for a period of 10 minutes. Allow surfaces to air dry. Rinse waterers and feeders with potable water before reuse. Do not immerse metal objects in Virkon®S Disinfectant and Virucide* for long periods - 10 minutes is maximum contact time.

GREENHOUSES AND HORTICULTURE

Virkon®S is intended to disinfect inanimate environmental surfaces: such as floors, walls, glasshouse structures, ventilation and other equipment, utensils, trays and other containers, water systems, evaporative coolers, storage rooms, and vehicles in greenhouses and other horticultural settings prior to introduction or reintroduction of plants, seeds or soil.

Not approved in California for use on ventilation and other equipment and water systems.

It is not intended to directly affect agricultural production and must not be applied to plants, seeds, or soil. If necessary, remove or cover these items prior to use of the product.

FOR SURFACES AND EQUIPMENT

1. Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose dirt.
2. Use a dilution of 1:100 or 1.3 oz. Virkon®S per gallon of clean water. Use a dilution of 1:50 or 2.6 oz. per gallon of clean water if surfaces that are to be treated have not been pre-cleaned with water to remove organic deposits. *Not approved in California for use at 1:50 dilution on surfaces that have not been pre-cleaned with water to remove organic deposits.*
3. Apply solution with mop, sponge, or power sprayer to thoroughly wet all surfaces.
4. Heavy growth of algae or fungi may have to be scrubbed off following application.
5. Reapply as often as needed for control.

FOR CLEAN NON-POROUS SURFACES

Pots, flats, trays: Use a dilution of 1:100 or 1.3 oz. per gallon of clean water. Soak tools to ensure complete coverage.

Work areas: Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose dirt. Use a dilution of 1:100 or 1.3 oz. of Virkon®S per gallon of clean water. Use a dilution of 1:50 or 2.6 oz. of Virkon®S per gallon of clean water if surfaces that are to be treated have not been pre-cleaned with water to remove organic deposits.

For evaporative coolers: *Not approved for use in California.* Treat existing algae and slime-contaminated surfaces with a 1:100 dilution of Virkon®S. Treat cooler water every week with a dilution of 1:200 or 0.65 oz. of Virkon®S for every gallon of cooler water. Virkon®S may also be used to disinfect irrigation tanks and lines. *Not an*

approved use in California. Run a 1% solution through the system or soak equipment in a 1% solution. Let stand for ten minutes and flush system with clean water after treatment.

AQUACULTURE

(Not approved for this use in California): Virkon®S intended to disinfect inanimate environmental surfaces associated with aquaculture including vehicles, nets, boots, waders, dive suits, hoses, brushes and other similar equipment. Virkon®S may also be used in foot dips. Virkon®S must not be applied directly to water.

Equipment used in separate sites, tanks, ponds in aquacultural settings should be disinfected before each new use by soaking for 20-30 minutes in a 1% Virkon®S solution followed by a water rinse.

EMERGENCY DISEASE CONTROL

(ANIMAL HEALTH) *(Not approved for this use in California):* Disinfection helps to control and prevent the cross-contamination of OIE List A organisms including Foot and Mouth Disease Virus, African Horse Sickness Virus, Vesicular Stomatitis Virus, Classical Swine Fever Virus (Hog Cholera Virus), African Swine Fever Virus, Newcastle Disease Virus, and Highly Pathogenic Avian Influenza Virus, Swine Vesicular Disease

Virus, and Mycoplasma mycoides (Contagious Bovine Pleuropneumonia).

Use a 1% solution of Virkon®S to clean and disinfect agricultural facilities and equipment, military facilities and equipment, airport facilities and equipment, port facilities and equipment, rail facilities and equipment, quarantine facilities and equipment, slaughter facilities and equipment, and other shipping facilities and equipment where animals or soils suspected of harbouring foot and mouth disease virus might have been previously present.

Within these facilities, treated objects include but are not limited to vehicles, farm equipment (including tractors, ploughing shares, cars and trucks, farm engines, harvesters, loaders, mowers, tillers and slaughter machinery), military equipment (including tanks and troop carriers), and shipping equipment (pallets, bins and containers). Spray Virkon®S at 1% solution to disinfect and clean walls, ceilings, floors, decks, container surfaces, vehicles, wheels, water proof footwear (such as rubber boots), livestock equipment, utensils and instruments. Saturate surfaces for a period of 10 minutes. Allow surfaces to air dry. Rinse waterers and feeders with potable water before reuse. Do not immerse metal objects in Virkon®S for long periods - 10 minutes is maximum contact time.

DISINFECTION LIMITED TO SPECIFIC AND KNOWN DISEASE ORGANISM PCV2 VIRUS

(Not approved for this use in California):

The instructions above call for use of a 1% solution for general disinfection. However, Virkon®S is an effective disinfectant for all hard, non-porous surfaces against the following organism at the dilution rate specified below. If the threat is known and limited to the organism below, Virkon®S may be used at the following dilution rate:

Organism	Dilution rate	Oz./Gal.
PCV2 Virus (PMWS)	1:200	0.7

USE IN FACILITIES USED FOR TEMPORARY CONFINEMENT OF ANIMALS

Use a 1% solution of Virkon®S to clean and disinfect inanimate surfaces associated with facilities used for the temporary confinement of animals. Sites may include, but are not limited to, barns, sheds, stables, pens, cages, and associated access alleys or walkways.

Virkon®S may also be used to clean and disinfect equipment related to the maintenance of animals found at fairs, exhibitions, animal auction yards, animal show/ boarding facilities, or other similar agricultural facilities designed for the temporary housing of animals.

To ensure that Virkon®S does not come in direct contact with animals, feed, or water, remove animals from treatment site and either remove or cover feed and water apparatus. To ensure precise application on inanimate surfaces, Virkon®S may only be applied using hand-held sprayers, sponges or other absorbent materials. Do not allow Virkon®S to pool on surfaces that may be within reach of animals. Do not allow Virkon®S to come into direct contact with people. Allow Virkon®S to completely dry prior to housing animals, using equipment, or allowing people to contact treated sites.

Manufactured for:

E. I. du Pont de Nemours and Company
DuPont Animal Health Solutions
PO Box 80402
Wilmington, DE 19880-0402 USA

Questions? Call 1-800-441-7515
Outside the US, contact: 1-302-774-1000

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DuPont™ Virkon® S

DISINFECTANT AND VIRUCIDE

DuPont™ Virkon® S is a multipurpose virucidal disinfectant with over 90 EPA-registered claims against pathogens affecting domestic and companion animals in the United States.



Product

Virkon® S is intended to disinfect inanimate environmental surfaces: such as floors, walls, gating, feeders, ventilation and other equipment, utensils, trays, and other containers, water systems, evaporative coolers, storage rooms, and vehicles in swine farm and other agriculture settings prior to introduction or reintroduction of animals. *Not approved in California for use on ventilation and other equipment and water systems.* It is not intended to directly affect agricultural production and must not be applied to animals. Remove animals prior to use of the product.

For surfaces and equipment

1. Sweep and remove all organic debris. Use power sprayer to wash all surfaces to remove all organic material.

2. Use a dilution of 1:100 or 1.3 oz. Virkon® S per gallon of clean water. Use a dilution of 1:50 or 2.6 oz. per gallon of clean water if surfaces that are to be treated have not been pre-cleaned with water to remove organic deposits. *Not approved in California for use at 1:50 dilution on surfaces that have not been pre-cleaned with water to remove organic deposits.*
3. Apply solution with mop, sponge, power sprayer, or fogger to thoroughly wet all surfaces.
4. Rinse surfaces after appropriate contact time is achieved.
5. Reapply as often as needed for control.

For clean non-porous surfaces

Floors, walls, gating, etc.: Use a dilution of 1:100 or 1.3 oz. per gallon of clean water. Soak tools to ensure complete coverage.

Work areas: Sweep and remove all organic debris. Use power sprayer to wash all surfaces to remove loose dirt. Use a dilution of 1:100 or 1.3 oz. of Virkon® S per gallon of clean water. Use a dilution of 1:50 or 2.6 oz. of Virkon® S per gallon of clean water if surfaces that are to be treated have not been pre-cleaned with water to remove organic deposits.

For evaporative coolers *Not approved use in California:* treat existing algae and slime-contaminated surfaces with a 1:100 dilution of Virkon®S. Treat cooler water every week with a dilution of 1:200 or 0.65 oz. of Virkon® S for every gallon of cooler water.

Virkon® S may also be used to disinfect irrigation tanks and lines. *Not approved use in California:* Run a 1% solution through the system or soak equipment in a 1% solution. Let stand for ten minutes and flush system with clean water after treatment.

Virkon® S at 0.5-1% solution is recommended for use in fogging (wet misting) operations or as a supplemental measure either before or after regular cleaning and disinfecting procedures. Fog (wet mist) until the area is moist using automatic foggers according to manufacturer's use directions. Rinse foggers and sprayers with water following use.

Not all products, applications, claims and/or uses are registered in all regions, countries or states. Over 90 EPA-registered claims is based on a label search of major disinfectants for animal health, using the EPA Pesticide Product Label System at <http://oaspub.epa.gov/pestlabl/ppls.home>. The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable. It is intended for use by trained personnel in chemical applications only and your discretion is advised. Because conditions of use are outside DuPont™ control, DuPont™ make no warranties, expressed or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.



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Distributed by:



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Phone: 1-800-621-8829 • Fax: 1-800-255-1168
Email: bioprotection@neogen.com

Virkon® Hand Held Sprayer:

Virkon Disinfectant and Virucide | 0.5% and 1% Diluted Solution



To calculate the number of diluted gallons needed to disinfect a barn or room, use the following formula:

Square footage of the area x 2.5 ÷ 135 = Total gallons of disinfectant solution needed

For example: To calculate the number of diluted gallons needed to disinfect a barn that is 40 feet wide and 100 feet long (or 4,000 square feet):

Multiply the square footage of the area by 2.5. Divide that number by 135 (because 1 gallon of disinfectant solution is sufficient to disinfect 135 ft²). The product of that calculation equals the total number of gallons of disinfectant solution needed.

$$4,000 \times 2.5 \div 135 = 74 \text{ Total gallons of disinfectant solution needed}$$

12 gallons of disinfectant solution can be generated from each fill of the 96 oz sprayer.

Usage Instructions and Dilution Chart:

Fill sprayer reservoir with water (96 fl oz.), then add Virkon S powder to achieve recommended solution concentration (see chart below). Connect inner hose to cap and affix to reservoir. Screw on sprayer to cap and hose to sprayer.

The sprayer provides a 16:1 use-dilution of the reservoir, so filling 96 oz provides 12 gallons of disinfecting solution. 1 gallon of disinfecting solution is sufficient to treat 135 square feet.

Quantity of Water	0.5% Solution*	1.0% Solution
96 ounces	7.8 ounces* (6 scoops)	15.6 ounces (12 scoops)

*The 0.5% solution currently is not approved for use in California

Distributed by:



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The miracles of science™



Virkon® S for Bird Flu Biosecurity

Bird Flu, or Avian Influenza is a viral infection spread from bird to bird.

Currently, a highly pathogenic strain of bird flu – H5N2 – is having a devastating impact on flocks in 11 states of the USA, affecting over 25 million birds (May 6th APHIS Online (Animal Plant and Health Inspection Service), with officials reporting the disease at growing numbers of farms, mostly egg laying facilities involving many millions of birds.

Migrating water fowl – most notably wild ducks – are the natural carriers of bird flu viruses. It's suspected that infection can spread from wild fowl to domestic poultry.

Virkon® S, a leading emergency disease control disinfectant, is distributed by Neogen and is part of their biosecurity product portfolio. Virkon® S has been independently tested and proven effective against bird flu strains which are closely related to the H5N2 strain:



Disease	Disinfectant	Strain	Dilution Rate
Avian Influenza / Bird Flu	Virkon® S	Influenza Type A Virus	1:100*
		H5N1	1:800*
		H9N2	1:1000*



*The independently tested and approved dilution rates for Virkon® S clearly demonstrate the effectiveness of the product for killing the bird flu virus. However, in practice farmers must bear in mind real farm conditions, in particular the heavy organic challenges and the broad spectrum of other potential disease-causing organisms. For this reason Neogen® recommends that Virkon® S is used at a standard dilution rate of 1:100

The Premium Broad Spectrum On-Farm Biosecurity Solution

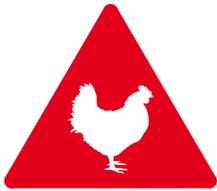
Virkon® S is the breakthrough disinfectant formulation that defines on farm biosecurity.

With powerful, proven performance against over 500 strains of viruses, bacteria and fungi including Foot and Mouth Disease (FMD), Avian Influenza, Salmonella and Campylobacter, Virkon® S is selected by governments worldwide for Emergency Disease Control.

Leading the way forward in best practice biosecurity programs, Virkon® S provides a wide range of applications to commercial livestock producers, veterinary hospitals and farmers.

For over 25 years, the “yellow powder formulation” has offered the flexible, fast-acting, convenient, one-stop disinfection package for:

- Surfaces
- Equipment
- Vehicles



**BIOSECURITY
PRECAUTIONS**

What are the symptoms of bird flu?

Sick birds become unstable on their feet; they demonstrate a loss of appetite, ruffled feathers and signs of depression. Egg production will drop suddenly, wattles and combs turn purple/blue in colour and the head, eyelids, comb, wattles and hocks will swell.

At the first sign of these symptoms farmers should contact their veterinarian.

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How can poultry production units and farms reduce the risk of contracting bird flu?

To help prevent bird flu from entering the farm environment, a continuous biosecurity program needs to be put in place. Contact Neogen for details of how to help protect farms and their flocks from bird flu using Virkon® S terminal and continuous biosecurity best practices.

Bird Flu Prevention

When considering an effective continuous biosecurity program, it is essential to bear in mind that bird flu can survive for considerable lengths of time outside of the host and birds can be infected through a number of vectors, including contact with other birds, contact with mechanical vectors such as vehicles and equipment and contact with farm personnel.

For more information on detailed bird flu biosecurity measures for protecting flocks and the cleaning and disinfection of housing/barns and farm buildings, visit www.neogen.com/AvianInfluenza

Contact Neogen Animal Safety for further information or to purchase Virkon® S for Avian Influenza Biosecurity.



Email: inform@neogen.com

Tel: USA – 1-800/477-8201

USA/Canada – 1-859/254-1221

www.neogen.com/AnimalSafety

VRKS-May15-V1

Virkon® S

DISINFECTANT AND VIRUCIDE

Virkon® S is the multipurpose virucidal disinfectant with the greatest numbers of EPA-registered claims against pathogens affecting domestic and companion animals.



Overview

Virkon® S is a balanced, stabilized blend of peroxygen compounds, surfactant, organic acids, and inorganic buffer. Virkon® S is recommended for use as a hard surface disinfectant in livestock production and transportation facilities. Virkon® S delivers 99.9999% kill of numerous pathogens including 31 bacterial strains, 58 viruses, and 6 fungi with no evidence of resistance, eliminating the need to rotate disinfectants to avoid resistance buildup.

Active Ingredients

Potassium peroxymonosulfate.....	21.41%
Sodium Chloride.....	1.50%
Other ingredients.....	77.09%
Total ingredient.....	100.00%

EPA Registration No. 71654-6

Mode of Action

Virkon® S oxidizes sulfur bonds in proteins and enzymes disrupting the function of the cell membrane causing rupturing of the cell wall.

Directions for Use

Use Disinfectants safely. For complete instructions on product use, handling and safety, always read and understand the product label and MSDS before use. It is a violation of Federal law to use this product in a manner inconsistent with its labeling. The information set forth herein is furnished free of charge and was prepared as a possible aid to use when considering the product. Anyone intending to use recommendations or information contained in this handout should first be satisfied that the information is suitable for their application and meets all safety and health standards appropriate for their intended use.



The miracles of science™

Effective Against Viruses, Bacteria and Fungi In Industrial and Agricultural/Animal Facilities.

VIROSES

Adenovirus Pneumonia
 African Horse Sickness Virus
 African Swine Fever Virus
 Avian Influenza Virus
 Avian Laryngotracheitis Viruses
 Bovine Adenoviruses Type 4
 Bovine Polyoma Virus
 Bovine Pseudocox Virus
 Bovine Viral Diarrhea Virus
 Calf Rotavirus
 Canine Adenovirus (Canine Hepatitis)
 Canine Coronavirus
 Canine Parainfluenza Virus
 Canine Parvovirus
 Chicken Anemia Virus
 Coital Exanthema Virus
 Distemper Virus
 Duck Adenovirus
 Duck Enteritis Virus
 Egg Drop Syndrome Adenovirus
 Equine Arteritis Virus
 Equine Contagious Abortion Virus
 Equine Herpes Virus (Type 1)
 Equine Herpes Virus (Type 3)
 Equine Infectious Anemia Virus (Swamp Fever)
 Equine Influenza Virus (Type A)
 Equine Influenza Virus (The Cough)
 Equine Papillomatosis Virus
 Feline Calicivirus
 Feline Herpes Virus
 Feline Infectious Peritonitis Virus
 Feline Panleukopenia Virus
 Feline Parvovirus
 Feline Rhinotracheitis Virus
 Foot and Mouth Disease Virus
 Helicobacter pylori
 Hog Cholera Virus
 Infectious Bronchitis Virus
 Infectious Bursal Disease Virus
 Infectious Canine Hepatitis Virus
 Infective Bovine Rhinotracheitis Virus
 Leptospira Canicola Virus
 Maedi-Visna Virus
 Marek's Disease Virus
 Mouse Parvovirus
 Newcastle Disease Virus
 PCVS Virus (PMWS)
 Porcine Parvovirus
 Porcine Reproductive and Respiratory

Syndrome Virus (PRRS)
 Pseudorabies Virus (Aujeszky's Disease)
 Rotaviral Diarrhea Virus
 Simian Virus (SV40 Virus)
 Swine Influenza Virus
 Swine Vesicular Disease Virus
 Transmissible Gastroenteritis Virus (TGE)
 Turkey Herpes Virus
 Turkey Rhinotracheitis Virus
 Vesicular Stomatitis

BACTERIA

Actinobacillus pleuropneumoniae
 Bacillus cereus
 Bordetella avium
 Bordetella bronchiseptica
 Brucella abortus
 Campylobacter jejuni
 Clostridium perfringens
 Dermatophilus congolensis
 Escherichia coli
 Fistulous withers (Poll Evil)
 Haemophilus somnus
 Klebsiella pneumoniae
 Listeria monocytogenes
 Moraxella bovis (Pink Eye)
 Mycoplasma gallisepticum
 Mycoplasma hyopneumoniae
 Mycoplasma mycoides
 Pasteurella multocida
 Pseudomonas aeruginosa
 Pseudomonas mallei (Glanders)
 Pseudomonas vulgaris
 Salmonella choleraesuis
 Salmonella typhimurium
 Shigella sonnei
 Staphylococcus aureus
 Staphylococcus epidermidis
 Streptococcus equi (Strangles)
 Streptococcus pyogenes
 Streptococcus suis
 Taylorella equigenitalis
 Treponema hyodysenteriae

FUNGI

Aspergillus fumigatus
 Fusarium moniliforme
 Microsporium canis
 Trichophyton mentagrophytes
 Trichophyton spp. (Mud Fever)
 Trichophyton spp. (Ringworm)



Physical Properties

State	Solid (powder or tablet)
Color	yellow
Odor	slight lemon
pH, 25°C in-use solution	2.2-2.6
Specific gravity	1.07
Stability	1% solution stable for 7 days 20% loss of activity after 14 days in 350ppm hard water
Boiling Point	decomposes on heating
Solubility	9.2 oz/gal @ 69°F
Density of 1% solution	9.3 lbs/gal.

Dilution Rates

Quantity of water	0.5% Solution	1.0% Solution	2.0% Solution
1 quart	0.15 oz	0.3 oz	0.7 oz
1 gallon	0.65 oz	1.3 oz	2.7 oz
10 gallons	6.7 oz	13.4 oz	26.7 oz
50 gallons	33.4 oz	66.8 oz	133.5 oz
1 scoop equals 1.3 oz or 1 scoop per gallon of water = 1%			

For 24-hour emergency information on the product, call 1-800-441-3637 (U.S. and Canada) or 1-302-774-1139 (all other areas)

www.ahs.dupont.com

Not all products, applications, claims and/or uses are registered in all regions, countries or states. Greatest number of EPA-registered claims is based on a label search of major disinfectants for animal health, using the EPA Pesticide Product Label System at <http://oaspub.epa.gov/pest/lab/pppls.home>. The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable. It is intended for use by persons having technical skills and should be used at their own discretion. Because conditions of use are outside our control, we make no warranties, expressed or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.



The miracles of science™

Distributed by:



944 Nandino Blvd., Lexington, KY 40511
 Phone: 1-800-621-8829 • Fax: 1-800-255-1168
 Email: bioprotection@neogen.com

**Virkon® S**

Version 2.0

Revision Date 05/26/2010

Ref. 130000093734

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Virkon® S
MSDS Number : 130000093734

Product Use : Disinfectant, Cleaning agent

Manufacturer : DuPont
1007 Market Street
Wilmington, DE 19898

Product Information : 1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency : 1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency : CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Potential Health Effects

Skin : Irritating to skin.

Eyes : Risk of serious damage to eyes.

Inhalation

Potassium peroxymonosulfate : Causes respiratory tract irritation.

Sulfamic acid : Inhaled corrosive substances can lead to a toxic oedema of the lungs. Harmful if inhaled and may cause delayed lung injury., Liquid aerosols may cause:, Oedema.

Ingestion

Potassium peroxymonosulfate : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Sulfamic acid : Burning sensation Abdominal pain

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Sodium chloride : Gastrointestinal discomfort Vomiting, Diarrhoea.

Target Organs

Potassium
peroxymonosulfate : Eyes

Primary Routes of Entry : Eye contact, Skin contact

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Potassium peroxymonosulfate	10058-23-8	21.41 %
Sulfamic acid	5329-14-6	4 - 6 %
Sodium chloride	7647-14-5	1.5 %

SECTION 4. FIRST AID MEASURES

- Skin contact : In case of contact, immediately flush skin with plenty of water. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Consult a physician if necessary.
- Eye contact : Rinse immediately with plenty of water and seek medical advice.
- Inhalation : Move to fresh air. Consult a physician if necessary.

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Ingestion : Call a poison control center or doctor for treatment advice. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give anything by mouth to an unconscious person.

SECTION 5. FIRE-FIGHTING MEASURES

Flammable Properties

Flash point : does not flash

Suitable extinguishing media : Water spray, Dry powder, Alcohol-resistant foam

Unsuitable extinguishing media : Carbon dioxide (CO₂)

Firefighting Instructions : Wear self-contained breathing apparatus (SCBA). Wear suitable protective equipment.
Evacuate personnel to safe areas. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Wear suitable protective equipment. Wear respiratory protection.

Spill Cleanup : Sweep up and shovel into suitable containers for disposal. Avoid dust formation. After cleaning, flush away traces with water.

Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas. Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel) : Avoid contact with skin, eyes and clothing. Do not get on clothing. Wash off with plenty of water. Wash clothing after use. Do not breathe dust. Avoid dust formation in confined areas. For personal protection see section 8.

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When using do not eat, drink or smoke.

Storage : Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container.
Keep away from: Combustible material
Stable under recommended storage conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls : Provide local exhaust ventilation when handling material in bulk. Ensure adequate ventilation.
- Personal protective equipment
- Respiratory protection : Provide adequate ventilation. Wear NIOSH approved respiratory protection as appropriate.
- Hand protection : Material: Impervious gloves
- Eye protection : Wear coverall chemical splash goggles and face shield when the possibility exists for eye and face contact due to splashing or spraying of material.
- Skin and body protection : Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants, jacket, hood and boots.

Exposure Guidelines

Exposure Limit Values

Pentapotassium bis(peroxymonosulphate) bis(sulphate)

AEL * (DUPONT) 1 mg/m³ 8 & 12 hr. TWA Total dust.

Sulfamic acid

AEL * (DUPONT) 0.5 mg/m³ 8 & 12 hr. TWAAEL * (DUPONT) 1.5 mg/m³ 15 minute TWA

Dipotassium peroxodisulphate

TLV (ACGIH) 0.1 mg/m³ TWA as persulfate

**Virkon® S**

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Potassium sulfate
AEL * (DUPONT) 10 mg/m3 8 hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : powder
Color : yellow
Odor : pleasant, sweet
pH : 2.4 - 2.7
Specific Gravity : 1.07
Water solubility : 65 g/l at 20 °C (68 °F)

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid : Protect from moisture.
Incompatibility : Strong bases combustibles, Acids, oxidizers, Brass, Copper, Halogenated compounds, Cyanides, Heavy metal salts
Hazardous decomposition products : Sulphur dioxide , Chlorine

SECTION 11. TOXICOLOGICAL INFORMATION

Virkon® S
Inhalation 4 h LC50 : 3.7 mg/l , rat
Dermal LD50 : 2,200 mg/kg , rabbit
Oral LD50 : 4,123 mg/kg , rat
Skin irritation : Moderate skin irritation
Eye irritation : Risk of serious damage to eyes.
Sensitisation : Animal test did not cause sensitization by skin contact., guinea pig

5 / 8

**Virkon® S**

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Potassium peroxymonosulfate Repeated dose toxicity	:	Inhalation rat Target Organs: Eyes Pathologic changes, Eyes, corneal damage, Information given is based on data obtained from similar substances.
		Oral - gavage rat Reduced body weight gain, Gastrointestinal effects, Information given is based on data obtained from similar substances.
Mutagenicity	:	Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others. Did not cause genetic damage in animals. Did not cause genetic damage in cultured bacterial cells. Information given is based on data obtained from similar substances.
Teratogenicity	:	Animal testing showed effects on embryo-foetal development at levels equal to or above those causing maternal toxicity. Information given is based on data obtained from similar substances.
Sodium chloride Mutagenicity	:	Did not cause genetic damage in cultured bacterial cells.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Potassium peroxymonosulfate

96 h LC50	:	Oncorhynchus mykiss (rainbow trout) 53 mg/l Information given is based on data obtained from similar substances.
72 h EC50	:	Pseudokirchneriella subcapitata (green algae) 0.97 mg/l Information given is based on data obtained from similar substances.
48 h EC50	:	Daphnia magna (Water flea) 3.5 mg/l Information given is based on data obtained from similar substances.

Sulfamic acid

96 h LC50	:	Pimephales promelas (fathead minnow) 14.2 mg/l
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Sodium chloride
LC50 : Pimephales promelas (fathead minnow) 7,650 mg/l

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : In accordance with local and national regulations. Do not flush into surface water or sanitary sewer system. Do not contaminate water, food or feed by disposal.

SECTION 14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

TSCA Status : On the inventory, or in compliance with the inventory

EPA Reg. No. : 71654-6

SECTION 16. OTHER INFORMATION

HMIS

Health	:	3
Flammability	:	0
Reactivity/Physical hazard	:	0
PPE	:	Personal Protection rating to be supplied by user depending on use conditions.

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Virkon® S

Version 2.0

Revision Date 05/26/2010

Ref. 130000093734

Do not use for medical-clinical purposes.

Contact person : MSDS Coordinator, DuPont Chemicals and Fluoroproducts, Wilmington, DE
19898, (800) 441-7515

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.



Professional LYSOL® Brand III Disinfectant Spray (Ready-To-Use)

This tuberculocidal, virucidal, fungicidal and bactericidal formula kills 99.9% of germs on hard, nonporous surfaces and is effective against over 50 microorganisms including H1N1 (Influenza A virus) MRSA, Norovirus, Rhinovirus, Poliovirus Type 1, Hepatitis A virus, Hepatitis B virus and HIV-1 (AIDS Virus).* This product eliminates odors and prevents the growth of mold and mildew. Use on showers, sinks, countertops, around toilet areas, toys, telephones, garbage bins, waiting rooms and in laboratories.

*When used as directed.

NSF Category Code D1:

Listing No. 139863 (Original)

Listing No. 139861 (Fresh)

Listing No. 139862 (COUNTRY SCENT®)

Listing No. 139865 (CRISP LINEN®)

Listing No. 139866 (SPRING WATERFALL®)

EPA Registration No: 777-99-675

19.0 oz. aerosol can/12	36241-04625	COUNTRY SCENT®
19.0 oz. aerosol can/12	36241-74828	CRISP LINEN®
19.0 oz. aerosol can/12	36241-04675	Fresh
19.0 oz. aerosol can/12	36241-04650	Original
19.0 oz. aerosol can/12	36241-76075	SPRING WATERFALL®



Provides Efficacy Against the Following Microorganisms:

Bacteria	Viruses	Fungi
Acinetobacter calcoaceticus	Adenovirus Type 2	Alternaria alternata
Burkholderia cepacia	(Avian) Influenza A Virus [H1N1] (A/Malaya/302/54)	Aspergillus niger (mold & mildew)
Campylobacter jejuni	(Avian) Influenza A Virus [H3N2]	Candida albicans
Corynebacterium diphtheriae	(Avian) Influenza A Virus [H5N1]	Fusarium solani
Enterobacter aerogenes	Coxsackie Type B3 Virus	Penicillium chrysogenum
Enterococcus faecalis (Vancomycin Resistant)	Cytomegalovirus	Trichophyton mentagrophytes (Athlete's Foot Fungus)
Enterococcus faecalis (VRE)	(Duck) Hepatitis B Virus	
Escherichia coli (O157:H7) (E.coli)	Echovirus Type 12	
Escherichia coli with extended beta-lactamase resistance (ESBL)	Feline calicivirus (Norovirus)	
Klebsiella pneumoniae	Hantavirus	
Klebsiella pneumoniae - NDM-1 positive	Hepatitis A Virus	
Klebsiella pneumoniae Carbapenem Resistant	Herpes Simplex Virus Type 1	
Listeria monocytogenes (Listeria)	Herpes Simplex Virus Type 2	
Mycobacterium bovis BCG [Quant tuberculosis]	Human Immunodeficiency Virus Type 1 [HIV-1] [AIDS Virus] (tested in the presence of 50% whole human blood)	
Neisseria elongata	Influenza A Virus (New Caledonia/20/99)	
Proteus mirabilis	Influenza B Virus (Strain B/Hong Kong/5/72)	
Proteus vulgaris	(Pandemic) Influenza A Virus [2009 H1N1]	
Pseudomonas aeruginosa	Poliovirus Type 1	
Pseudomonas putida	Respiratory Syncytial Virus (RSV) (the leading cause of lower respiratory infections in children)	
Salmonella enterica serovar enteritidis	Rhinovirus Type 39 (a leading cause of the common cold)	
Salmonella enterica serovar Paratyphi B	Rotavirus WA	
Salmonella enterica serovar typhi	(Swine) Influenza A Virus [H1N1]	
Serratia marcescens	Vaccinia Virus	
Shigella dysenteriae		
Staphylococcus aureus		
Staphylococcus epidermidis		
Streptococcus pyogenes (Strep)		
Streptococcus salivarius Methicillin Resistant		
Staphylococcus aureus (Staph)(MRSA)		

SAFETY DATA SHEET



Professional Lysol® Brand III Kills 99.9% of Viruses & Bacteria** Disinfectant Spray,
All Scents

HEALTH • HYGIENE • HOME

1. Product and company identification

- Product name** : Professional Lysol® Brand III Kills 99.9% of Viruses & Bacteria** Disinfectant Spray, All Scents
- Distributed by** : Reckitt Benckiser LLC.
Morris Corporate Center IV
399 Interpace Parkway (P.O. Box 225)
Parsippany, New Jersey 07054-0225
+1 973 404 2600
- Emergency telephone number (Medical)** : 1-800-338-6167
- Emergency telephone number (Transport)** : 1-800-424-9300 (U.S. & Canada) CHEMTREC
Outside U.S. and Canada (North America), call Chemtrec:703-527-3887
- Website:** : <http://www.rbnainfo.com>
- Product use** : Disinfectant.

This SDS is designed for workplace employees, emergency personnel and for other conditions and situations where there is greater potential for large-scale or prolonged exposure, in accordance with the requirements of USDOL Occupational Safety and Health Administration.

This SDS is not applicable for consumer use of our products. For consumer use, all precautionary and first aid language is provided on the product label in accordance with the applicable government regulations, and shown in Section 15 of this SDS.

- SDS #** : D0224478 v5.0
- Formulation #:** : 1338-022 (0175933) Original
1544-106 (0175940) Fresh
1338-019 (0175919) Country
1178-172 (0175917) Crisp Linen / Crystal Waters
1338-015 (0175918) Spring Waterfall
1338-026 (0175929) Early Morning Breeze / Lavender
- EPA ID No.** : 777-99-675
- UPC Code / Sizes** : 19 oz. Aerosol Cans
Original Scent, 36241-04650
Fresh, 36241-04675
Country Scent®, 36241-74276
Crisp Linen®, 36241-74828
Spring Waterfall®, 36241-76075
Crystal Waters, 36241-84044
Early Morning Breeze, 36241-81737
Lavender, 36241-89097

D0224478 v5.0

2. Hazards identification

Classification of the substance or mixture : FLAMMABLE AEROSOLS - Category 2

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Flammable aerosol.
Pressurized container: may burst if heated.

Precautionary statements

General : Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Pressurized container: Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source.

Response : Not applicable.

Storage : Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Disposal : Not applicable.

Supplemental label elements : None known.

Hazards not otherwise classified : None known.

3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Ethyl alcohol	30 - 60	64-17-5
butane	1 - 5	106-97-8
propane	< 2.5	74-98-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

4. First aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : May cause eye irritation upon direct contact with eyes.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
irritation
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

D0224478 v5.0

6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

- Conditions for safe storage, including any incompatibilities** : Do not store above the following temperature: 50°C (122°F). Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Control

Occupational exposure limits

Ingredient name	Exposure limits
Ethyl alcohol	<p>ACGIH TLV (United States, 6/2013). STEL: 1000 ppm 15 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 1000 ppm 10 hours. TWA: 1900 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p>
butane	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 800 ppm 8 hours. TWA: 1900 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 800 ppm 10 hours. TWA: 1900 mg/m³ 10 hours.</p> <p>ACGIH TLV (United States, 6/2013). STEL: 1000 ppm 15 minutes.</p>

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8. Exposure controls/personal protection

propane

OSHA PEL 1989 (United States, 3/1989).

TWA: 1000 ppm 8 hours.

TWA: 1800 mg/m³ 8 hours.

NIOSH REL (United States, 10/2013).

TWA: 1000 ppm 10 hours.

TWA: 1800 mg/m³ 10 hours.

OSHA PEL (United States, 2/2013).

TWA: 1000 ppm 8 hours.

TWA: 1800 mg/m³ 8 hours.

Appropriate engineering controls

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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9. Physical and chemical properties

Appearance

Physical state	: Liquid. [Aerosol.]
Color	: Clear.
Odor	: Characteristic.
Odor threshold	: Not available.
pH	: 10.8 to 11.8 [Conc. (% w/w): 100%]
Melting point	: Not available.
Boiling point	: Not available.
Flash point	: Closed cup: 25.6°C (78.1°F)
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Relative density	: 0.8667 to 0.8967 g/cm ³ [20 to 25°C]
Solubility	: Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not available.

Aerosol product

Type of aerosol	: Spray
Heat of combustion	: 17.99 kJ/g
Ignition distance	: <45.72 cm

10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame).
Incompatible materials	: Do not mix with household chemicals.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ethyl alcohol	LC50 Inhalation Vapor	Rat	124700 mg/m ³	4 hours
*Professional Lysol® Disinfectant Spray, All Scents (Aerosol)	LD50 Oral	Rat	7 g/kg	-
	LC50 Inhalation Vapor	Rat	>2.12 mg/l	4 hours Maximum attainable concentration

Conclusion/Summary : Not classified Harmful. *Information is based on toxicity test result of the concentrate of a similar product.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ethyl alcohol	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
*Professional Lysol® Disinfectant Spray, All Scents (Aerosol)	Eyes - Cornea opacity	Rabbit	< 1	72 hours	4 days
	Skin - Primary dermal irritation index (PDII)	Rabbit	0.3	4 hours	72 hours

Conclusion/Summary

Skin : Slightly irritating to the skin. *Information is based on toxicity test result of the concentrate of a similar product.

Eyes : Moderately irritating to eyes. *Information is based on toxicity test result of the concentrate of a similar product.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Ethyl alcohol	-	1	-

Reproductive toxicity

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11. Toxicological information

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : May cause eye irritation upon direct contact with eyes.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
irritation
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

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11. Toxicological information

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Ethyl alcohol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 ul/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Ethyl alcohol	-0.35	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

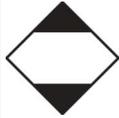
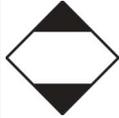
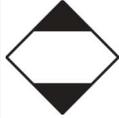
Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

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13. Disposal considerations**14. Transport information**

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1950	Aerosols, flammable	2.1	-		Limited quantity
TDG Classification	UN1950	Aerosols, flammable	2.1	-		Limited quantity
Mexico Classification	UN1950	AEROSOL	2.1	-		Limited quantity
IMDG Class	UN1950	Aerosols, flammable	2.1	-		Limited quantity
IATA-DGR Class	UN1950	Aerosols, flammable	2.1	-		See DG List

PG* : Packing group

15. Regulatory information

U.S. Federal regulations : TSCA 8(a) PAIR: 2-methylpropan-2-ol
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.
Clean Water Act (CWA) 311: ammonia
Clean Air Act (CAA) 112 regulated flammable substances: butane; propane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

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15. Regulatory information

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Ethyl alcohol	30 - 60	Yes.	No.	No.	Yes.	No.

State regulations

Massachusetts : The following components are listed: ETHYL ALCOHOL; BUTANE; PROPANE

New York : None of the components are listed.

New Jersey : The following components are listed: ETHYL ALCOHOL; ALCOHOL; BUTANE; PROPANE

Pennsylvania : The following components are listed: DENATURED ALCOHOL; BUTANE; PROPANE

Label elements

Signal word: : CAUTION

Hazard statements : Causes moderate eye irritation

Precautionary measures : Do not get in eyes, on skin or on clothing. Wash thoroughly after handling. Wash with soap and water.
Keep out of the reach of children.
CONTENTS UNDER PRESSURE. Do not puncture or incinerate container. Do not expose to heat or store at temperatures above 120 °F. Keep away from heat, sparks, open flames and hot surfaces. - No smoking.

Hazard statements :



Flammable

16. Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	3
Physical hazards	0
Personal protection	B

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

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16. Other information

National Fire Protection Association (U.S.A.) :



NFPA (30B) aerosol Flammability Level 1

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Key to abbreviations :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- UN = United Nations

Date of issue : 26/06/2015.

Date of previous issue : 09/04/2015.

Version : 5

Prepared by : Reckitt Benckiser LLC.
Product Safety Department
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Montvale, New Jersey 07646-1810 USA.
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Revision comments : Revision as per US GHS. Correction to NFPA 30B level.

▣ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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16. Other information



RB is a member of the CSPA Product Care Product Stewardship Program.



Carcass Disposal Options Decision Tool

Matrix, Decision Loop, Checklist (MLCh)

Developed by USDA APHIS in collaboration with the DHS S&T Depopulation, Disposal, and Decontamination (3D) Program and federal interagency 3D Integrated Product Team (IPT)

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APHIS website for training modules:

http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/animalhealth/sa_emergency_management/ct_fadprep_aphis_vs_em_resources/lut/p/a1/IZFJc4JAEIV_iveP1DTIokdxA5VoxRiBy1Q7DksVDARGq8yvz6i55OCSUB2p16-7vyYxCUks8JSnKPNKYHHRsU3nK8_QXTD82WYwAf_tcxr0l05v5ZnKECnDaDb0TGcJAGbFAH_semNnEAD49mv1cOcN4Vn9jsQkZkLWmiMR1IneUIYjYwKrb5vsDI3oUVaHRuaVOzYXhWkvMSCZhwLmV1_eMmbIA2piUKTJUUsqtM0gQPdcNreos-tcpJG96qPMbbS--a5QcS2RagY5mWZhjINZMzU9tZx9J0PbF7oHNbZ_Zt1j_rzCauWme6XDULuQEL69fwCOFv8IBXpIA6d4kNTLL559TzF05oNMEoSfUySkzLRVkr8A5UEj6FunNJ3IXz6muRkrrcbst-z373vj-Scrf2h53ODz20d0o!/?1dmy&urile=wcm%3apath%3a%2Faphis_content_library%2Fsa_our_focus%2Fsa_emergency_response%2Fsa_esf11%2Fsa_tools_and_training%2Fct_aphis_role_emergency_tools

Carcass Management Options Matrix

Weighting	Criteria	Off-Site Landfill	Rendering	Off-Site Incineration	Composting	Open Air Burning	On-Site Burial
Most Important (x3)	Public Health Risk (1)	9	9	9	9	6	3
	Biosecurity (2)	6	6	6	3	3	3
	Pathogen Inactivation (3)	3	6	9	6	9	3
	Environmentally Sustainable (4)	9	9	9	9	3	3
Important (x2)	Need to Transport Carcasses Offsite (5)	2	2	2	6	6	6
	Volume Reduction (6)	4	6	6	4	6	4
	Availability(7)	6	4	2	4	4	4
	Throughput (8)	6	6	2	4	4	4
	Speed to Implement (9)	6	4	4	4	4	4
	Public Acceptance (10)	6	4	6	4	2	4
Less Important (x1)	Cost Effectiveness (11)	3	2	1	1	1	3
	Efficiency (12)	3	3	3	2	1	2
	Operability (13)	3	3	3	2	1	3
	Regulatory limitations (14)	2	3	2	2	1	1
	Denial of use (15)	3	2	2	2	2	1
	Total Points	71	69	66	62	53	48
	Average Score	4.7	4.6	4.4	4.1	3.5	3.2

Matrix Explanation

Green technologies were scored 3 points

Yellow technologies were scored 2 points

Red technologies were scored 1 point

Scores were weighted according to the importance of the criteria.

Scores for each column were totaled then averaged to obtain the ranking

Color Key



Ideal



Not Ideal



Not Suitable

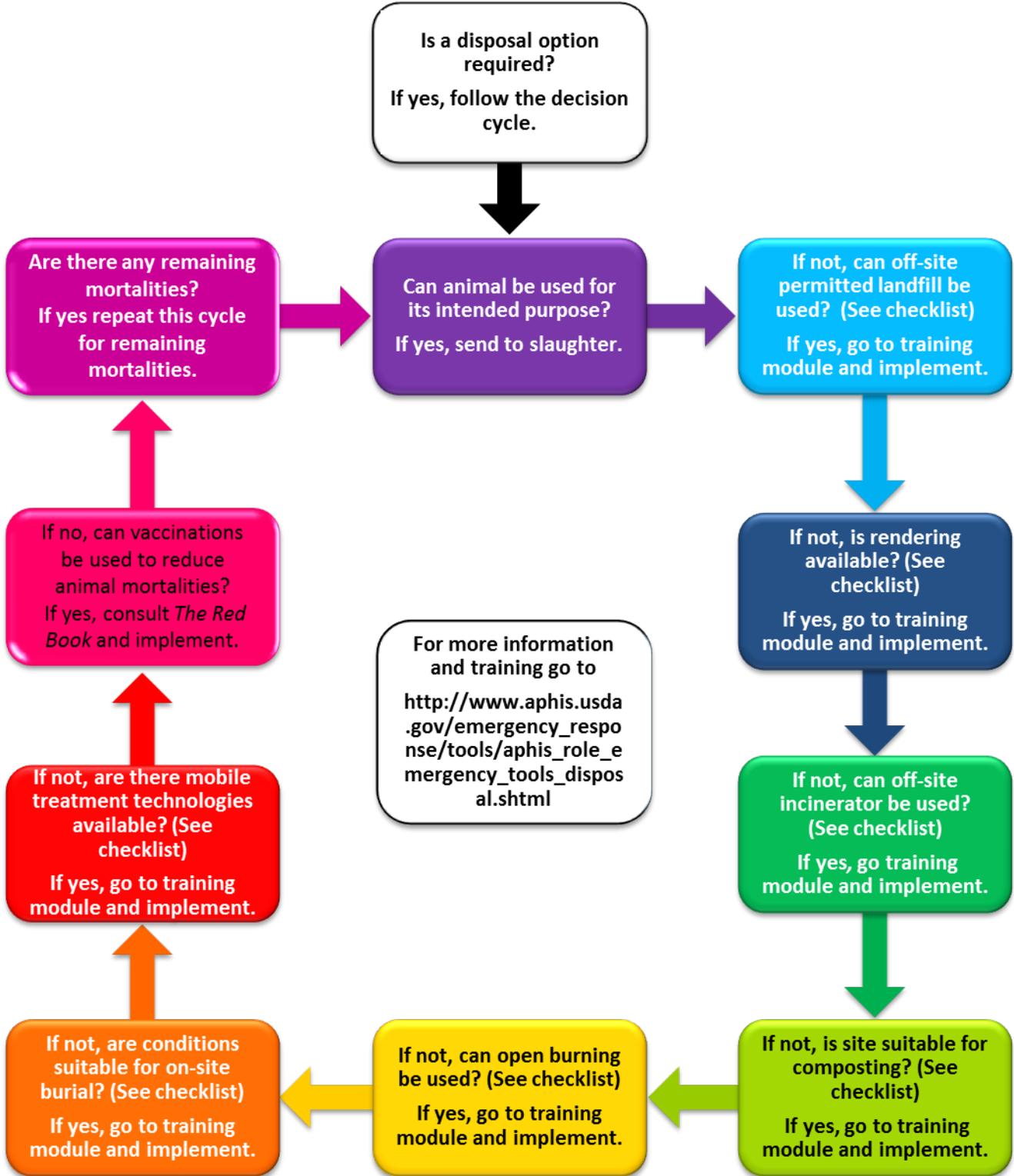
Matrix Footnotes

Mobile, new, or innovative technologies are not included in this matrix, but a separate table for such technologies is under development.

Values in matrix may be incident specific.

1. **Public health risk** – based on the UK 2001 human health qualitative risk assessment which excluded composting and mobile technologies. The rankings are consistent with the public health risks tabulated by the United Kingdom (UK) Department of Health (now the Department for Environment, Food and Rural Affairs), in “A Rapid Qualitative Assessment of possible risks to Public Health from current Foot & Mouth Disposal Options, Main Report,” June 2001.
2. **Biosecurity** – if process can be contained and easily disinfected = 3, if process is somewhat contained, but the processing area is difficult to disinfect = 2, if process is not contained = 1
3. **Pathogen Inactivation** – If process completely inactivates pathogen = 3, partial inactivation = 2, no inactivation = 1
4. **Environmental sustainability** – low risk of environmental contamination and useful end product = 3, low risk of contamination or useful end product = 2, risk of environmental contamination and no useful end product = 1
5. **Transport carcasses offsite** – Yes = 1, No = 3
6. **Volume reduction** – process reduces volume of biomass = 3, same volume = 2, increases volume = 1
7. **Availability** – option is widely available = 3, regional or somewhat available = 2, very limited availability = 1.
8. **Throughput** – the amount of biomass that can be processed per day. If >200K lbs/day = 3, between 200K lbs/day - 50K lbs/day = 2, <50K lbs/day = 1. Note: Throughput X Availability = Capacity
9. **Speed to implement** – how quickly can option begin taking first carcasses including obtaining regulatory approval where immediately = 3, <5 days = 2, more than 5 days = 1
10. **Public acceptance** – likelihood of public protests where low = 3, medium = 2, and high = 1
11. **Cost effectiveness** – cost to perform option from K State Carcass Disposal: A Comprehensive Review where <\$100/ton = 3, \$100/ton - \$250/ton = 2, > \$250/ton = 1.
12. **Efficiency** – amount of inputs (utilities, chemicals, fuel, carbon source) to contain and stabilize biomass over a short period of time
13. **Operability** – ease of implementation, for example simple to do, operators readily trained and available
14. **Regulatory limitations** – permits or regulator exemptions would have to be obtained in order to utilize this disposal method
15. **Denial of use** – land or equipment is no longer able to be used for its intended purpose due to disposal method

Carcass Management Decision Cycle



Carcass Management Options Checklist

First Option - Can Animal be used for its intended purpose?

- Consider vaccination as a way to maintain animal health
 - Consult USDA APHIS Red Book for guidance on stamping out, vaccination to live and vaccination to slaughter options
- Can livestock and poultry entering the food chain meet food safety requirements? Consult with food safety officials to:
 - Ensure animals are safe for human consumption
 - Ensure public acceptance of products
 - Ensure pathogens are contained
- If so, send to slaughter or other processing. **If not**, ensure that depopulation methods are compatible with disposal capacity. Consider storage options so depopulation rate does not exceed disposal rate.
- Proceed through checklist to select disposal option(s).**

Second Option - Can off-site permitted landfill be used?

- See a comprehensive list of landfills at <http://www2.ergweb.com/bdrtool/login.asp>.
 - Logon to the I-WASTE Tool and obtain a password if you do not currently have one.
 - Enter userid and password.
 - Choose treatment and disposal facilities button on the lower left.
 - Enter filter criteria such as “facility type (e.g., rendering, incinerators, or landfill)”
 - Note that construction debris landfills are not suitable for carcass disposal, and hazardous waste landfills are not necessary unless the carcasses are contaminated with a hazardous material causing them to be classified as hazardous
 - Enter State or EPA region, and click “View List of Facilities” button.
- Contact facilities and determine if they will accept your livestock or poultry and meet some or all of your capacity needs.
 - If there is insufficient capacity, consider fast-tracking expansion of existing landfill or permitting of new landfill for this purpose.
 - Consider potential environmental and biosecurity concerns.

- If the landfill will accept the material, arrange for biosecure transport. Consult a qualified waste management professional to:
 - Determine if any permits are required for transport of infected carcasses.
 - Determine type of transport vehicles required. If the waste must travel on public roads, it should be transported in closed, leak-proof trucks or dumpsters. Secondary containment may be needed, depending on the type of waste being transported.
 - Work with disposal group within the Incident Command System to determine how many animals can be depopulated per day and how many trucks will be needed for transport per day, ensuring the rates are about the same.
 - Pre-identify transport routes to minimize exposure to susceptible premises.
- If permitted landfilling is an option, see the **Secure Transport** and **Off-Site Treatment/Burial** training modules at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement off-site permitted landfilling. **If not,**

Third Option - Is rendering available?

- See a complete list of renderers at <http://nationalrenderers.org/about/directory> or the EPA database at <http://www2.ergweb.com/bdrtool/login.asp>.
 - Logon to the I-WASTE Tool and obtain a password if you do not currently have one.
 - Enter userid and password.
 - Choose treatment and disposal facilities button on the lower left.
 - Enter filter criteria such as “facility type (e.g., rendering, incinerators, or landfill)”
 - Enter State or EPA region, and click “View List of Facilities” button.
- Contact facilities and determine if they will accept your livestock or poultry and meet some or all of your capacity needs.
 - If the capacity is less than needed, can the carcasses be stored/refrigerated while awaiting disposal?
- If so, arrange for storage and transport to rendering facility for disposal. Consult a qualified waste management professional to:
 - Determine if any permits are required for transport of infected carcasses.
 - Determine type of transport vehicles required. If the waste must travel on public roads, it should be transported in closed, leak-proof trucks or dumpsters. Secondary containment may be needed, depending on the type of waste being transported.

- Work with disposal group within the Incident Command System to determine how many animals can be depopulated per day and how many trucks will be needed for transport per day, ensuring the rates are about equal.
- Pre-identify transport routes to minimize exposure of susceptible premises.
- If rendering is an option, see **Secure Transport** and **Off-Site Treatment/Burial** training modules at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement rendering. **If not,**

Fourth Option - Can off-site incinerator be used?

- See a complete list of incinerators at or the EPA database at <http://www2.ergweb.com/bdrtool/login.asp>.
 - Logon to the I-WASTE Tool and obtain a password if you do not currently have one.
 - Enter userid and password.
 - Choose treatment and disposal facilities button on the lower left.
 - Enter filter criteria such as “facility type (e.g. rendering, incinerators, or landfill)”
 - Enter State or EPA region, and click “View List of Facilities” button.
- Contact air authorities to verify operations are not in violation of their air permits.
- If the facilities are compliant, contact them and determine if they will accept your livestock or poultry and meet some or all of your capacity needs.
- If so, arrange for transport to off-site incineration facility for disposal. Consult a qualified waste management professional to:
 - Determine if any permits are required for transport of infected carcasses.
 - Determine type of transport vehicles required. If the waste must travel on public roads, it should be transported in closed, leak-proof trucks or dumpsters. Secondary containment may be needed, depending on the type of waste being transported.
 - Work with disposal group within the Incident Command System to determine how many animals can be depopulated per day and how many trucks will be needed for transport per day, ensuring the rates are about equal.
 - Pre-identify transport routes to minimize exposure of susceptible premises.
- If off-site incineration is an option see the **Secure Transport** and **Off-Site Treatment/Burial** training modules at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement off-site incineration. **If not,**

Fifth Option - Is site suitable for composting?

- Identify a suitable site on premises or in a centralized location in accordance with the checklist items, below.
 - If off-site consider the need for secure transport
- Based on the expert opinion of a trained and qualified compost specialist, are the site conditions suitable for composting the number of animals affected?
 - See USA composting council website for more information on training courses and equipment availability <http://compostingcouncil.org/>
 - Adequate land area to build compost piles
 - At least 200 feet from water wells, surface water bodies (lakes, streams, rivers, etc.), sinkholes, seasonal seeps or other landscape features that indicate the area is hydrologically sensitive.
 - Consider all groundwater pathways including the presence of drain tiles, soil characteristics, depth to groundwater, use of groundwater etc.
 - Located away from neighbors and/or out of sight.
 - Located downwind from neighbors and/or houses.
 - Located away from environmentally-sensitive areas.
 - Located close to the livestock or poultry facility or have clear access for transport.
 - Clear of overhead utility lines.
 - Void of excess water.
 - Located on a gentle slope (1%-3%) so there will be no water ponding.
 - Consider the need for an impermeable base and/or protective cover to prevent leachate generation and migration.
- If the site is suitable, consider the duration of time it takes to fully compost and determine if the following issues can be overcome:
 - Personnel required to ensure maintenance of pile.
 - Need for pest management.
 - Potential for extreme weather (e.g., hurricane) to disturb pile.
 - Denial of use of land area while carcass decomposes.

- Grinding of infectious carcasses prior to composting is not recommended unless aerosols are controlled.
- Final composted material cannot be used on crops and will need to be disposed of.
- If so, is there a sufficient local supply of carbon source such as wood chips (3 pounds carbon source per pound of biomass)?
 - Manure from contaminated feedlots can be scraped and used in compost to clean the feedlot as well as provide carbon materials for composting.
 - Check with local agencies and organizations to determine if stockpiles of carbon source are available (e.g., parks department and landfills). Ensure that the carbon source is free of any pests or pathogens which could threaten local species.
- If so, have you arranged for the necessary equipment and supplies to be delivered to the site?
 - Personnel
 - Composting supplies and carbon source
 - Personal protective equipment
 - Personal supplies
 - Cleaning and disinfecting (biosafety) supplies
 - Hand tools
 - Heavy equipment (mid-size skid-steer loaders, tractors with bucket loaders, excavators, bulldozers, payloaders, forklifts, trucks, containers and caps, polyethylene material for lining carcass transport containers)
- If composting is an option see **Outdoor Composting** training module at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement composting. **If not,**

Sixth Option - Is site suitable for open air burning?

- Based on the expert written opinion of an experienced air quality specialist, will open burning release air pollutants in excess of public health standards?
 - Consider if proposed site is within an air quality attainment or non-attainment area.
- If not, does the applicable permitting authority allow open air burning?
 - Local Fire Department
 - State Department of Agriculture, Animal Health

- State Department of Environment or Natural Resources
- USDA-APHIS
- USEPA
- If so, can the permit conditions, such as measures to control the spread of fire, distance to occupied buildings etc. be met?
- If so, based on the expert opinion of an experienced environmental engineer, are the site conditions suitable for open air burning?
 - What environmental testing (e.g., water, ash, soils) are required and at what frequency?
 - How and where would the ash be disposed of?
 - Are weather conditions (e.g., wind and drought) suitable for open air burning?
- If so, will burning be publically unacceptable?
- If so, have you arranged for the necessary personnel, equipment and supplies to be delivered to the site?
 - Adequate source of combustible material and fuel to keep the fire going. Verify that type of fuel is acceptable to regulatory agencies.
 - Other equipment including mechanical chains and lifting equipment.
 - Personnel properly trained in the use of this equipment.
 - Fire safety equipment also should be readily available.
- If open air burning is an option, see **On-Site Treatment/Burial** training module at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement on-site open air burning. **If not,**

Seventh Option - Is site suitable for on-site burial?

- Are soils suitable (see USDA NRCS online Web Soil Survey)?
- If so, based on the expert written opinion of an experienced groundwater hydrologist, will leachate contaminate groundwater in excess of public health standards?
 - Consider all groundwater pathways including the presence of drain tiles, soil characteristics, depth to groundwater, use of groundwater etc.
- If not, based on the expert written opinion of an experienced environmental engineer, will the burial site create a stability or explosion hazard from production of methane?

- If not, is adequate land available for on-site burial?
- If so, is burial permitted by applicable regulatory authorities? Can permit requirements be met?
- If so, will land owner accept on-site burial, associated environmental liabilities, and potential loss of property value or use?
- If on-site burial is an option, see the **On-Site Treatment/Burial** training module at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement on-site burial. **If not,**

Eighth Option - Are mobile treatment technologies available for your area?

- Contact all appropriate mobile treatment technology vendors.
 - Verify the units are available for deployment to your site.
 - Verify your ability to meet all site/utility requirements.
 - Verify units can be fully disinfected after use.
 - Verify the units have adequate capacity to meet your needs.
 - If the capacity is less than needed, can the carcasses be stored/refrigerated while awaiting disposal?
 - Verify the availability of skilled operators and spare parts to keep the units operational.
 - Verify the unit can be set-up on the site (e.g., the site has appropriate grading)
- If so, is the technology permitted by the applicable regulatory authorities?
 - State Department of Agriculture, Animal Health
 - State Department of Environment or Natural Resources
 - USDA-APHIS
 - USEPA
- If so, can the permit conditions be met?
- If so, can the technology process byproducts be readily disposed?

If mobile treatment is an option, see **On-Site Treatment/Burial** training module at www.aphis.usda.gov/emergency_response/tools/aphis_role_emergency_tools.shtml and implement on-site mobile technologies. **If not,**

Ninth Option – Can vaccination be used to reduce animal mortalities?

- If you were unable to find a method of disposal for all animals, re-consider vaccination as way to maintain animal health
 - Consult Red Book for guidance on stamping out, vaccination to live and vaccination to slaughter options
 - Consult National Veterinary Stockpile (NVS) for availability of vaccine and equipment http://www.aphis.usda.gov/animal_health/emergency_management/nvs.shtml
- If you still need to dispose of animals, return to First Option and repeat cycle until all carcasses can be managed.

Definitions

Biomass is the total quantity or weight of livestock/poultry carcasses and associated biodegradable material requiring management.

Capacity is equal to throughput times availability where throughput is the amount of biomass that can be processed per day per system and availability is the number of systems available.

Composting is a natural biological decomposition process that takes place in the presence of oxygen (air). Composting process control parameters include the initial ratios of carbon and nitrogen rich materials, the amount of bulking agent added to assure air porosity, the pile size, moisture content, and turning frequency. Turning or rotating the compost piles can improve composting rates, but is not recommended when disposing of infected carcasses.

Depopulation (also known as culling, destruction, and/or euthanasia) is a method by which large numbers of diseased and/or suffering animals are killed quickly and efficiently with as much consideration given to the welfare of the animals as practicable. It may be practiced during an animal health emergency, such as a major disease outbreak to eliminate animal suffering or help prevent or mitigate the spread of the disease through the elimination of infected, exposed, or potentially exposed animals. It also serves to remove contaminated livestock from the food supply, protect the nation's agricultural and national economy, and safeguard public health. Animals should not be depopulated until a disposal plan is in place.

Grinding is an operation that reduces biomass particle size. Grinding implies that particles are broken apart largely by smashing and crushing rather than tearing or slicing.

Groundwater is water below the land surface in a zone of saturation.

Leachate is any liquid material that drains from land, waste, or stockpiled material and contains significantly elevated concentrations of contamination derived from the material that it has passed through.

Off-site (Fixed-facility) incinerators include (a) small on-farm incinerators, (b) small and large incineration facilities, (c) crematoria, and (d) power plant incinerators. Unlike open-air burning and air-curtain incineration, fixed-facility incineration is wholly contained and, usually, highly controlled.

On-site Burial in the context of this document refers to excavating a trench or pit into the earth, placing carcasses in the trench, and covering with the excavated material (backfill).

Open-air burning includes burning carcasses (a) in open fields, (b) on combustible heaps called pyres, and (c) with other burning techniques that are unassisted by incineration equipment.

Pathogens are any organism capable of producing disease or infection.

Permitted Landfills are modern Subtitle D landfills that are highly regulated operations, engineered and built with technically complex systems specifically designed to protect the environment and include liners and leachate controls. These landfills are distinguished from older landfills in the U.S. (sometimes

called small arid landfills) which were constructed before Subtitle D regulations were effective, and therefore were not constructed with sophisticated containment systems.

Premises are geographically and epidemiologically defined locations, including a ranch, farm, stable, or other establishment.

Pyres are structures, usually made of wood, for burning carcasses.

Rendering is the process by which purified fat and protein products are recovered from inedible portions of animals by cooking at high temperatures.

Slaughter is the killing of an animal or animals for human consumption.

Stamping out is the depopulation of clinically affected and in-contact susceptible animals.

Waste can be loosely defined as material that cannot be used for its intended purpose.

Vaccination to Live is the depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, without subsequent depopulation of vaccinated animals.

Vaccination to Slaughter is the depopulation of clinically affected and in-contact susceptible animals and vaccination of at-risk animals, with subsequent depopulation of vaccinated animals.