



LICENSED

PERIOD **2015-2017** LIC. NO.
9174.29

ALUDE

SYSTEMIC FUNGICIDE

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN CUCURBITS, DOWNY MILDEW IN CUCURBITS, LETTUCE, AND ONION, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS & BEDDING PLANTS, PHYTOPHTHORA IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS:

Mono- and di-potassium salts of Phosphorous Acid*45.8%

OTHER INGREDIENTS:54.2%

TOTAL:100.0%

*Contains 5.17 lbs/gallon of the active ingredients, mono- and di-potassium salts of Phosphorous Acid.
Equivalent to 3.35 lbs Phosphorous Acid/gallon

KEEP OUT OF REACH OF CHILDREN CAUTION

Consult this booklet for First Aid and Precautionary Statements

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice • Have person sip a glass of water if able to swallow • Do not induce vomiting unless told to do so by a poison control center or doctor • Do not give anything by mouth to an unconscious person
IF IN EYES:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye • Call poison control center or doctor for treatment advice
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> • Take off contaminated clothing • Rinse skin immediately with plenty of water for 15-20 minutes • Call a poison control center or doctor for treatment advice
IF INHALED:	<ul style="list-style-type: none"> • Move person to fresh air • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible • Call a poison control center or doctor for further treatment advice
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact the National Poison Control Hotline at 1-800-222-1222, 24 hours a day, 7 days a week.</p>	

Manufactured for:
Cleary Chemicals, LLC
178 Ridge Rd, Suite A
Dayton, NJ 08810



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EPA Reg. No. 71962-1-1001
EPA Est. No 70815-GA-1

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

Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing vapors or spray mist. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse. Wear the appropriate Personal Protective Equipment (PPE).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators, mixers, loaders, and other handlers must wear:

- protective eyewear
- long pants and long-sleeved shirt
- waterproof gloves
- shoes plus socks.

Follow manufacturer's instructions for maintaining/cleaning personal protective equipment (PPE). If no such instructions for washables, use hot water and detergent. Keep and wash PPE separately from other laundry. When handlers use closed systems, aircraft or enclosed cabs in a manner that meets the requirements listed in the worker protection standard (WPS) for agricultural pesticides (40 CFR 170.240 (d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before drinking, eating, chewing gum, using tobacco or using the toilet.
- Remove PPE clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Use: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE

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

Read entire label before using this product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the state or tribal agency responsible for pesticide registration.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, CFR 40 part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that are permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soils or water, is: coveralls worn over short-sleeved shirt and short pants, waterproof gloves, shoes plus socks and protective eyewear.

ALUDE™

Hazardous Decomposition: Some gases such as phosphorous oxides may be released.

Hazardous Polymerization: Material is not known to polymerize.

SECTION 11: TOXICOLOGICAL INFORMATION

EPA Class 4, Caution

Acute Inhalation:	Not determined
Eye Irritation:	Mild eye irritant
Skin Irritation:	Mild skin irritant
Acute Dermal:	> 5000 mg/Kg (rat)
Acute Oral:	> 5000 mg/Kg (rat)

SECTION 12: ECOLOGICAL INFORMATION

Not classified as Hazardous

SECTION 13: DISPOSAL CONSIDERATIONS

Triple rinse empty container with water and add to spray mix. Dispose of container following appropriate Federal, State and local regulations.

SECTION 14: TRANSPORT INFORMATION

Not DOT or UN regulated

SECTION 15: REGULATORY INFORMATION

Not regulated under US EPA SARA Title 3, Sec. 302, 311, 312, or 313

Not Regulated under California Prop 65

SECTION 16: OTHER INFORMATION

Please note: Cleary Chemicals LLC believes that the information and recommendations contained herein are accurate as of the date hereof. The information provided herein applies only to the specific product designated and may not be valid where said product is used in combination with any other material or in any process. It is the users responsibility to determine the suitability of the information for their purposes.

No warranty of fitness for any particular purpose, warranty of merchantability, or any other warranty, Expressed or implied, is made concerning the information provided.

Reason for issue:	Update
Cleary MSDS Prepared by:	R. Fletcher
Issue date:	03/04/10
Supersedes date:	04/03

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to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eyes: Hold eyelids pen and rinse with plenty of water for at least 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a Doctor or poison control center for further treatment advice.

Skin: Rinse with plenty of water for 15 minutes. Call a Doctor or poison control center for further treatment advice.

SECTION 5: FIRE FIGHTING MEASURES

Flammability: Not flammable

Combustion: Not combustible

Flash Point & Method: NA

Flammability Limits: NA

Special Fire Fighting Procedures: Some gases such as phosphorous oxides may be released. In smoke or fumes, wear self-contained breathing apparatus. Advise fire brigade of any hazard, suitable for more extinguishing media.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Stop leak if possible. Contain product with an inert diking material such as clay or kitty litter. Reclaim as much liquid as possible. Vacuum or shovel up as much absorbent as possible. Place reclaimed product in a closed and properly labeled waste drum. Store drum until proper disposal can occur. Flush residue with water. Wash thoroughly after handling.

SECTION 7: HANDLING AND STORAGE

Store away from combustible materials. Store in a temperature controlled, dry place.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Avoid unnecessary contact with product and remove all contaminated clothing. Wash hands and face before eating. Pesticide Applicators, Mixers, and Loaders must refer to the product label and directions for use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Physical State:	Blue, odorless liquid
Boiling Point:	> 212°F
Vapor Pressure:	Not determined
pH:	5.5-6.0
Melting Point:	NA
Freezing Point:	> 8°F
Specific Gravity:	1.35

SECTION 10: STABILITY AND REACTIVITY

General: This material is stable under normal conditions.

Incompatible Materials: Avoid contact with strong bases, strong oxidizing agents and metals. Product is corrosive to most.

NDA – No Data Available NA – Not applicable
Issue Date: 03/04/10

NON-AGRICULTURAL USE REQUIREMENTS

The requirements of this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Do not enter treated areas without protective clothing until sprays have dried.

CHEMIGATION

Use of ALUDE™ through chemigation is not permitted in California.

Apply this product only through center pivot, solid set or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

SPRINKLER AND DRIP (TRICKLE) IRRIGATION SYSTEMS:

The irrigation system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. (Sprinkler Chemigation Only) Do not apply when wind speed favors drift beyond the area intended for treatment.

Apply ALUDE™ continuously for the duration of the water application. After treatment with ALUDE™ has been completed, avoid further irrigation of the treated area until foliage is dry or for 24 to 48 hours.

GENERAL APPLICATION INSTRUCTIONS

Apply ALUDE™ by various application methods, including foliar spray, soil drench, soil incorporation, basal bark application and bare root dip. For foliar sprays, apply ALUDE™ with sufficient water volumes for adequate coverage of foliage, according to crop and growth stage. To ensure good coverage, spray to wetness, but avoid run-off.

When using Alude™ with Pentra-Bark™ adhere to all applicable label directions. Only use Pentra-Bark™ with basal bark or tree injection applications.

MIXING INSTRUCTIONS

1. Fill the spray tank with 1/4 - 1/2 of the volume of water required before adding ALUDE™
2. Add ALUDE™ slowly to the tank and agitate by mechanical or hydraulic means
3. Continue agitating as tank fills with water to the desired volume
4. Maintain agitation during application

COMPATIBILITY

ALUDE™ is compatible with most products used in agriculture. However, individual crop sensitivity to these mixtures may vary. Mixtures of ALUDE™ with some foliar fertilizers and copper products are not always compatible or cause phytotoxicity to some plants. If these combinations or others have not been used previously, do not tank mix without first testing the compatibility of the tank mix. Do not apply tank mixture without first assessing its safety to the crop (phytotoxicity). Tank mix ALUDE™ with fertilizers only if crop safety has been established and the ALUDE™ use rates are followed.

Due to ALUDE™'s acidic nature, do not use acidifying-type compatibility agents. If spray adjuvants are used test them before use to confirm compatibility with ALUDE™. Use a jar test to confirm compatibility with ALUDE™. In a clean jar using the same water source that is normally used to fill spray tank, add the same proportions of each product and the appropriate quantity of water and mix thoroughly. Let stand for 3 minutes. If mixture remains in solution or is remixed readily the tank mix is compatible. Spray the solution that results from the above compatibility test onto a few plants and inspect for visual effects of phytotoxicity (leaf burn) 3 to 7 days later.

AGRICULTURAL APPLICATIONS

APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE*

Use ALUDE™ for effective control of black spot, root and collar rot and fire blight in apples, crab apples, loquats, pears, and quinces.

Disease	Application Method	Rate	Application Program
Apple black spot and scab (<i>Venturia inaequalis</i>)	Foliar spray	1/2 gallon per acre in 25-250 gallons water per acre	First application at open cluster. Last application at fifth cover or fruit at 2" to 21/2" diameter. Total of 10 applications at 10 to 12 day intervals. When conditions are conducive to a black spot outbreak, apply ALUDE™ immediately. Note: After 4 or 5 consecutive applications some yellowing of extension growth may be observed. If yellowing occurs use another fungicide until yellowing of leaves disappears.
Apple black spot and scab (<i>Venturia inaequalis</i>)	Basal bark spray at bud swell or silvertip stage of growth in early spring	62.4 fl. oz + 62.4 fl oz of water + 3.2 Fl oz Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of Alude™ and Pentra-Bark™ on the completed circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present (treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)
Root and collar rot (<i>Phytophthora cactorum</i>) Fire Blight (<i>Erwinia amylovora</i>)	Foliar spray	Apply at 1 1/4 to 2 1/2 quarts per acre with a maximum of 250 gallons water per acre.	One to two month intervals between treatments. Under high disease pressure use higher application rate and shorter spray interval. Ensure thorough coverage.
	Basal bark spray treat in spring and fall for best results	62.4 fl. oz + 62.4 fl oz of water + 3.2 Fl oz Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of Alude™ and Pentra-Bark™ on the completed circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present (treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)

*Not for use in California except basal bark spray on apples and crab apples.

BRASSICAS

Use ALUDE™ for effective control of downy mildew in brassicas such as, but not limited to broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccoli, collards, Chinese cabbage, Chinese mustard cabbage, kale, kohlrabi, mizuna, mustard greens, mustard spinach, and rape greens.

CLEARY MATERIAL SAFETY DATA SHEET

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Please read the entire document. This Material Safety Data Sheet contains important environmental, health and toxicology information for your employees, and anyone who will use, transport, store, dispose of or handle this product. Please make sure this information is given to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this MSDS must be given to the buyer or the information contained herein must be incorporated in your MSDS.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ALUDE™ Systemic Fungicide
EPA REGISTRATION NUMBER(S): 71962-1-1001
CHEMICAL NAME: Mono- and di-potassium salts of Phosphorous Acid

COMPANY

Cleary Chemicals LLC
 178 Ridge Road, Suite A
 Dayton, NJ 08810
 1-800-524-1662

EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY: 1-800-222-1222	SPILL EMERGENCY: 1-800-424-9300
POISON CONTROL CENTER	CHEMTREC

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Active Ingredient(s)/ Hazardous Inert Ingredient(s)	% by Wt.	CAS#	ACGIH TLV	OSHA PEL
Monopotassium phosphite and Dipotassium phosphite	45.8	13977-65-6 13492-26-7	NA NA	NA NA

NOT CLASSIFIED AS HAZARDOUS

SECTION 3: HAZARDS IDENTIFICATION

Acute Health Hazards

Swallowed: Ingestion may cause diarrhea, nausea, vomiting and cramps
Eye: A mild irritant to eyes
Skin: Mildly irritating to skin
Inhalation: Nil
NFPA: Health = 0, Fire = 0, Reactivity = 0
HMIS: Health = 0, Fire = 0, Reactivity = 0

SECTION 4: FIRST AID MEASURES

Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able

Disease	Application Method	Rate	Application Program
Pythium	Foliar spray	5 to 10 fl. oz. per 1000 sq. ft.	Apply indicated quantity of product in 1 to 2 gallons of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Application intervals: 14-21 days. Repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

TURF TANK MIXTURES

For the effective control of summer stress complex caused by a complex of Rhizoctonia and Pythium diseases, tank-mix ALUDE™ with Fore™ WP [or Protect T/O or mancozeb-containing] fungicide and apply to turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms.

Product	Disease	Rate per 1000 sq. ft.	Application Program
ALUDE™ + FORE™ WP** [or Protect T/O or mancozeb-containing fungicide]	Summer Stress Complex (<i>Rhizoctonia</i> and <i>Pythium spp.</i>)	5 to 10 fl. oz. ALUDE™ + 4 to 8 fl. oz. FORE™ WP** [or Protect T/O or mancozeb-containing fungicide]	Apply indicated quantity of product in 1 to 5 gal. of water per 1000 sq. ft. as a foliar spray. Start as a preventive spray at two-week intervals and repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

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Do not graze animals on treated areas of turf. Do not feed treated turf clippings to poultry or livestock.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE:

Keep this product in containers stored upright and secured with the original closure. Do not store this product near any heat source. Do not store near strong oxidants. If transfer to another container becomes necessary, ensure that the container is clearly labeled, the container is a type suitable for the product, and is clean and free of other materials.

PESTICIDE DISPOSAL:

Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL:

Nonrefillable container. Do not use or refill this container.

Containers with a capacity of less than 5 gallons: Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. 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. Offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, keep out of smoke.

WARRANTY AND DISCLAIMER

To the extent permitted by law, all conditions and warranties and statutory or other rights of action which buyer or any other user may have against Cleary Chemicals, LLC are hereby excluded. Cleary Chemicals, LLC hereby gives notice to buyer and other users that it will not accept responsibility for any indirect or consequential loss arising from reliance on product information provided by Cleary Chemicals, LLC. or on its behalf unless it is established that such information or advice was provided negligently and that the product has been used strictly as directed. Cleary Chemicals, LLC's liability shall in all circumstances be limited to replacement of product or a refund of the purchase price thereof.

Disease	Application Method	Rate	Application Program
Downy mildew (<i>Peronospora parasitica</i>)	Foliar spray	1 1/4 quarts per acre in 25 gallons of water per acre to 2 1/2 quarts per acre in 250 gallons of water per acre California: 1 1/4 quarts per acre in 100 gallons of water to 2 1/2 quarts per acre in 185 gallons of water	1 to 3 week intervals between applications when conditions favor disease development (cool, moist weather). Use higher rates and shorter intervals when disease pressure increases.

CUCURBITS

Use ALUDE™ for effective control of sudden wilt, gummy stem blight, and downy mildew diseases in cucurbits grown in field situations such as, but not limited to, cucumber, Chinese waxgourd, citron melon, gherkin rock melon, honeydew melon, pumpkin, zucchini, watermelon and squash (summer and winter), momordica spp., balsam apple, balsam pear, bitter melon, and Chinese cucumber.

Disease	Application Method	Rate	Application Program
Sudden wilt – Root and fruit rot (<i>Phytophthora spp</i>)	Foliar spray	Apply 1 1/4 quarts per acre in 40 gallons of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.
Gummy stem blight (<i>Mycosphaerella melonis</i>)			Apply when disease is evident. Continue applications at 21 day intervals until cure is apparent.
Downy mildew (<i>Pseudoperonospora cubensis</i>)			Apply within 7 to 10 days of infection. Repeat as necessary. Do not exceed a total of 6 applications per season.

CUCURBITS, TANK MIXTURES*

For the effective control of downy mildew diseases, tank-mix ALUDE™ with a mancozeb-containing fungicide and apply to cucurbits.

Product	Disease	Rate per Acre	Application Program
Alude™ + mancozeb-containing fungicide	Downy mildew	Light to medium foliage cover: Apply 1 1/4 - 2 Quarts of product per acre Heavy foliage cover: Apply 3 quarts of product per acre + label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products. For best results apply Alude™ as a tank mix with protectant fungicides such as mancozeb, copper oxychloride, et., to ensure both pre- and post-infection activity.

*Not for use in California

FRUITING VEGETABLES*

Use ALUDE™ for effective control of damping-off, root rot, and gummy stem blight diseases in egg plant, tomatoes, tomatillos, and peppers such as, but not limited to, bell, chili, cooking, pimento, and sweet.

Disease	Application Method	Rate	Application Program
Eggplant: Pythium and Phytophthora spp, and Gummy stem blight (<i>Mycosphaerella melonis</i>)	Foliar spray	Apply 1 1/4 quarts per acre in 40 gallons of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season. Apply when disease is evident. Continue applications at 21-day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Peppers: Late blight and root rot (<i>Phytophthora infestans</i> and <i>Phytophthora spp</i>)		1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	First application at transplant or when direct seeded crops are at 2-4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.
Tomatoes/Tomatillos: Late blight and root rot (<i>Phytophthora infestans</i> and <i>Phytophthora spp</i>)		1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water California: 1 1/4 quarts per acre in 90 gallons of water	First application at transplant or when direct seeded crops are at 2-4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals

*Use in California limited to tomatoes and tomatillos

LEAFY VEGETABLES*

Use ALUDE™ for effective control of downy mildew in leafy vegetables such as, but not limited to, amaranth, arugula, cardoon, celery, chervil, corn salad, endive, fennel, lettuce, parsley, radicchio, rhubarb, spinach, and Swiss chard. Excludes Brassica vegetables.

Disease	Application Method	Rate	Application Program
Downy mildew (<i>Bremia lactucae</i>)	Foliar spray	1/2 gallon per acre in 40 gallons water	Ensure spray coverage is adequate to wet the whole plant. During warm, wet conditions repeat application at 7 to 10 day intervals, if needed.

*Use in California limited to lettuce.

LEGUMES*

Use ALUDE™ for effective control of damping-off and root rot diseases in legumes (succulent and dried) such as, but not limited to, green beans, soybeans, wax beans, field beans, navy beans, lima beans, fava beans, kidney beans, pinto bean, mung beans, broad beans, lentils, chickpeas, English peas, snow peas, sugar snap peas, black-eyed peas, cow peas, and pigeon peas.

Disease	Application Method	Rate	Application Program
<i>Phytophthora</i> and <i>Pythium spp</i>	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water.	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

	Soil drench	6 1/4 - 12 3/4 fl oz per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month
<i>Phytophthora spp*</i>	Foliar spray	2 quarts per acre	Apply spray in 20-60 gallons per acre.
<i>Phytophthora spp*</i>	Hand gun	2 quarts per 100 gallons of water	Apply spray to thoroughly wet all foliage

*Lavender applications

CONIFERS IN COMMERCIAL NURSERIES, PLANTATIONS AND FORESTS* (INCLUDING CHRISTMAS TREES)

Apply ALUDE™ in conjunction with good cultural management practices for effective control of root rot (*Phytophthora spp*) in CONIFERS including, but not limited to, Pines, Spruce and Douglas Fir. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to CONIFERS that are moisture or heat stressed.

Disease	Application Method	Rate	Application Program
<i>Phytophthora</i>	Foliar spray	1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply one gallon of solution per sq yd. Follow application with irrigation. Application intervals: 14 to 21 days. Repeat as required.
	Bare root dipping at transplanting	1 quart per 100 gallons of water Or 2 tsp. per gallon of water	Immediately before transplanting, dip transplants for two minutes; keep roots submerged and ensure root mass is thoroughly wet.
<i>Fusarium subglutinans</i> (Pine Pitch Canker)	Basal bark spray apply any time active growth is observed	1 gallon Alude™ + 2 gallons of water +4 fl. oz. Of Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of Alude™ and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line.
	Injection	20 ml per tree of a 1 Gallon Alude™ + 2 gallons of water + 4 fl oz. Of Pentra-Bark™ solution	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.

*Not for use in California except as an injection and/or basal bark spray on pines. Do not graze livestock in treated areas of conifer nurseries or plantations. Do not feed forage from treated areas of plantations and or nurseries.

TURF

Use ALUDE™ for the effective control of Pythium and damping-off diseases of turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms. When conditions favor disease, begin preventive applications and repeat at indicated intervals. Use higher rate of application when disease pressure is severe.

are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid plant injury. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Bacterial blight (<i>Xanthomonas campestris</i>) <i>pthovars: dieffenbachiae, ficifederatae</i> and <i>syngonli</i>	Foliar spray	2-4 pints per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 7 to 14 days Repeat as required.
Downy mildew		1 1/4 - 2 1/2 quarts per 100 gallons of water Or 2 1/2 - 5 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required
<i>Phytophthora</i> spp, <i>Phytophthora ramorum</i> , and <i>Pythium</i> spp		1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	6 1/4 - 12 3/4 fl oz per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month Just prior to potting, mix 1 to 2 pts. of ALUDE™ into each cubic yard of growing media. If disease pressure is high, apply foliar spray or soil drench. Immediately before transplanting, dip transplants for two minutes, keep roots submerged, ensure root mass is thoroughly wet.
	Soil incorporation	1-2 pints per cubic yard of soil	
	Bare rooted dipping of transplants	2 pints per 100 gallons of water Or 2 tsp. per gallon	

BEDDING PLANTS

Use ALUDE™ for effective control of Downy mildew, *Phytophthora* spp and *Pythium* spp diseases of BEDDING PLANTS grown in landscapes, nurseries and golf courses, parks and, greenhouses. Apply ALUDE™ to plants such as, but not limited to, Ageratum, Algerian Ivy, Anthurium, Artemesia, Aster, Begonia, Baby's Breath, Caladium, Carnation, Chrysanthemum, Columbine, Coleus, Daisy, Delphinium, Easter Lily, Foxglove, Gaillardia, Geranium, Gloxinia, Impatiens, Marigold, Petunia, Pansy, Phlox, Pinks, Poinsettia, Primrose, Prostrate Rosemary, Salvia, Snapdragon, Vinca, Verbena, and Zinnia.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar Spray	1 1/4 - 2 1/2 quarts per 100 gallons of water Or 1/4 - 1 1/8 fl. oz. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
<i>Phytophthora</i> spp and <i>Pythium</i> spp	Foliar Spray	1-2 quarts per 100 gallons of water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. Note do not apply more than 500 gallons of spray solution per acre.

OKRA*

Use ALUDE™ for effective control of damping-off and root rot diseases in okra.

Disease	Application Method	Rate	Application Program
<i>Phytophthora</i> and <i>Pythium</i> spp	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water.	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

ONIONS

Use ALUDE™ for effective control of downy mildew disease in onions, garlic, shallots, and leeks. Use as a preventative control program for best results.

Disease	Application Method	Rate	Application Program
Downy mildew (<i>Peronospora destructor</i>)	Foliar spray	2 quarts per acre in 100 gallons water per acre	As a regular preventative control program or when disease first appears.

ONIONS, TANK MIXTURES*

For the effective control of downy mildew diseases, tank-mix ALUDE™ with a mancozeb-containing fungicide and apply to onions, garlic and shallots.

Product	Disease	Rate per Acre	Application Program
ALUDE™ + mancozeb-containing fungicide	Downy mildew	2 quarts per acre in 100 gallons water per acre + Label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products. For best results, apply ALUDE as a tank mix with protectant fungicides such as mancozeb to ensure both pre- and post-infection activity

*Not for use in California.

ROOT AND TUBER VEGETABLES*

Use ALUDE™ for effective control of foliar and root rot in ginseng, damping-off and root rot diseases in carrots, and late blight disease and storage diseases such as pink rot and *pythium* leak in potatoes, sweet potatoes, and yams.

Disease	Application Method	Rate	Application Program
Ginseng: Foliar and root rot (<i>Phytophthora cactorum</i>)	Foliar spray	2 1/2 quarts in 100 gallons of water	In cool wet conditions that favor <i>Phytophthora</i> . Apply at 7 day intervals. Do not exceed a total of 8 applications per season.
Carrots: <i>Phytophthora</i> and <i>Pythium</i> spp	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Potatoes, Sweet Potatoes, Yams: Late blight, Pink rot and <i>Pythium</i> leak (<i>Phytophthora infestans</i> , <i>Phytophthora erythroseptica</i> and <i>Pythium</i> spp)	Foliar spray	1 1/4 quarts per acre in 90-375 gallons water per acre	Apply at 5 to 14 day intervals subject to disease incidence.

*Use in California limited to potatoes, sweet potatoes, and yams.

GRASS GROWN FOR SEED PRODUCTION*

Use ALUDE™ for effective control of damping-off and root rot diseases in turf grasses such as, but not limited to, Bermuda, fescue, bent, blue, rye, zoysia, buffalo, and poa annua.

Disease	Application Method	Rate	Application Program
<i>Phytophthora</i> and <i>Pythium</i> spp	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-21 day intervals, as necessary. Ensure thorough coverage.

*Not for use in California.

LANDSCAPE, GOLF COURSE, NURSERY, FORESTRY, AND PARK APPLICATIONS*

Use ALUDE™ for effective control of *Phytophthora* and *Pythium* diseases associated with Stem and Canker Blight (Sudden Oak Death, *Phytophthora ramorum*), Beech Decline, and general tree decline syndromes in landscapes, nurseries, golf courses, forests, and parks. Apply ALUDE™ to trees such as, but not limited to, Beech, Cedar, Chestnut, Crab Apple, Dogwood, Elm, Fir, Hawthorne, Juniper, Linden, Monterey Pine, Oaks (Coastal, Live, Shreve, Black, Canyon), Ornamental Pear, Pyracantha, Sweet Birch, Sweet Gum, White Pine, White Cedar, and Willow.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or tree injury may occur. Do not apply to trees that are heat or moisture stressed. Do not apply to trees that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid tree injury. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
<i>Phytophthora</i> and <i>Pythium</i> spp, and <i>Phytophthora ramorum</i>	Injection		Drill holes 3/16 inch (5 mm) in diameter into live sapwood (depth dependent upon age of tree) with downward angle into trunk uniformly around the tree circumference, using a slow drill. Do not inject into areas of obvious decay, canker or mechanical injury that appear on the tree trunk. Calculate the amount of product required by measuring the trees by one of the following 3 methods, and use the highest calculated number of injections. 1) 1 injection per square yard of canopy; 2) 1 injection per yard of diameter of canopy measured at the drip-line; 3) 1 injection per 6 inches of trunk circumference measured 4 feet above soil level. Make injections with applicators that maintain positive pressure differential such as ChemJet™, Sidewinder™, Ag-murph Gun™, Marley™ Injector, or hydraulic applicator type equipment that forces solution into the sapwood of the tree.
<i>Phytophthora</i> and <i>Pythium</i> spp, and <i>Phytophthora ramorum</i>	Basal bark spray (all other tree species) apply in spring and fall.	62.4 fl. oz + 62.4 fl. oz of water + 3.2 fl. oz Pentra- Bark™ Bark Penetrating Surfactant	Spray a combination of Alude™ and Pentra- Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the base of the first scaffolding limbs, if present. Treat in spring and fall for best results.

(continued)

<i>Fusarium subglutinans</i> (Pine Pitch Canker)	Basal bark spray (pines) apply anytime active growth is observed	1 gallon of Alude™ + 2 gallons of water +4fl. o. of Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 5-6 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
<i>Fusarium subglutinans</i> (Pine Pitch Canker) and <i>Gnomonia platani</i> (Sycamore Anthracnose)	Injection	20 ml per tree of a 1 Gallon Alude + 2 gallons of water + 4 fl. oz. Of Pentra-Bark solution	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or positive pressure hydraulic tree injection. Trees should be at least 10" diameter at breast height.
Apple black spot and scab (<i>Venturia inaequalis</i>)	Basal bark spray apply early spring at bud swell or silver tip stage of growth	62.4 fl. oz + 62.4 fl. oz of water + 3.2 fl. oz Pentra- Bark™ Bark Penetrating Surfactant	Spray a combination of Alude™ and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present (Treatment generally lasts 8 - 12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.) Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applications with backflow prevention devices and other similar application devices.
Fire blight	Foliar spray	1 1/4 quarts per 100 gallons of water	First application pre bloom. Application intervals: 7 days until end of bloom period. Apply spray to thoroughly wet all foliage.

*Use in California limited to Oaks (Coastal, Live, Shreve, Black, Canyon) and Tan Oaks, and other tree species that are host to *P. ramorum*. Applications limited to injection and basal bark spray of pines, basal bark spray of apples and crabapples, and injection of Sycamores for control Sycamore anthracnose. Do not apply to any other tree species without consulting the list of *P. ramorum* host species listed at the following website: <http://nature.berkeley.edu/com/ff/index.html>. For questions contact your local extension office.

ORNAMENTAL APPLICATIONS

Use ALUDE™ for effective control of Bacterial blight, Downy mildew, *Phytophthora* spp and *Pythium* spp diseases of Ornamentals in landscapes, nurseries, golf courses, parks, and greenhouses. Apply ALUDE™ to plants such as, but not limited to, Aglaonema, Anthurium, Aphelandra, Arborvitae, Azaleas, Bougainvillea, Boxwood, Cattelya skinneri, Ceanothus, Cotoneaster, Cissus, Diffenbachia, English ivy, Eucalyptus, Ficus, Hibiscus, Japanese andromeda, Japanese Holly, Leather leaf Fern, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Rhododendron, Roses (container, field, landscape, and mini varieties), Schefflera, Sedum, Sempervivum, Syngonium, Spathiphyllum, Taxus media, and Zygocactus. Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or plant injury may occur. Do not apply to plants that are heat or moisture stressed. Do not apply to plants that