UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



WASHINGTON, D.C. 20460

Steven Rogosheske Terra International, Inc. 600 Fourth Street P.O. Box 6000 Sioux City, Iowa 51102-6000

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

MAR 27 2000

Subject:

Carbaryl 4L

EPA Registration No. 9779-260

Resubmission dated December 8, 1999 in response to EPA Letter dated November 30, 1999 in Response to GDE.

Dear Mr. Rogosheske:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable provided that you make the labeling changes indicated below before you release the product for shipment bearing the amended labeling:

1. You must add the correct the PHI for Chestnuts (14 days) to this label and correct the PHI for strawberries to 7 days. The PHI for Proso Millet is 21 days, and the PHI for Sweet Potato is 7 days.

Submit two copies of your final printed labeling before you release the product for shipment. A stamped copy of the labeling is enclosed for your records.

Sincerely,

George Tompkins, Ph.D., Entomologist Insecticide-Rodenticide Branch Registration Division (7505C)

CARBARYL 4L

FOR BROAD SPECTRUM CONTROL OF INSECTS

ACTIVE INGREDIENT		
Carbaryl (1-naphthylmethylcarbamate)	43,4%	
INERT INGREDIENTS	56.6%	
TOTAL		100.0%

Product contains 4 pounds carbaryl per gallon.

STOP - READ LABEL BEFORE USING

ACCEPTED with COMMENTS In EPA Letter Dated:

KEEP OUT OF REACH OF CHILDREN

CAUTION

MAR 27 2000
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
9779-260

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Drink 1 or 2 glasses of water and induce vomiting by placing finger on back of throat. Call a physician. Never give anything by mouth to an unconscious person.

IF ON SKIN: Remove contaminated clothing and wash skin with soap and plenty of water. If irritation develops, get medical attention.

IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes. If irritation develops, get medical attention.

IF INHALED: Remove victim to fresh air and apply respiration if indicated.

PRECAUTIONARY STATEMENTS CAUTION HAZARDS TO HUMANS AND DOMESTIC ANIMALS

May be harmful if swallowed. Avoid breathing spray mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse.

NOTE TO PHYSICIAN: Carbaryl is a moderate, reversible cholinesterase inhibitor. Atropine is antidotal. Do not use 2-PAM, opiates or cholinesterase inhibiting drugs.

Personal Protective Equipment

Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove 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.

EPA Reg. No. 9779-260

EPA Est. No. 97/9-AR-1

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Manufactured for: CENEX/Land O' Lakes Agronomy Co. P.O. Box 64089, St. Paul, MN 55164-0089 Riverside Serves Agriculture. Agriculture Serves Everyone.

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NET CONTENTS

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ENVIRONMENTAL HAZARDS

This product is toxic to fish and extremely toxic to aquatic and estuarine invertebrates. Do not apply directly to water or wetlands, except under forest canopy and for use on rice. Discharge from rice fields may kill aquatic and estuarine invertebrates. Do not apply when weather conditions favor drift from areas treated. Do not apply where runoff is likely to occur. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds it bees are visiting the treatment area.

DIRECTIONS FOR USE

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

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR, 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 statement on this label about personal protective equipment (PPE). 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 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: coveralls, waterproof gloves, and shoes plus socks.

STORAGE AND DISPOSAL

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

STORAGE

Store in a dry location away from foods, feeds, seeds, and other agricultural chemicals. Keep storage area locked when not in use. Keep container closed when not using. Do not allow water into container as this may cause deterioration of product. Handle in accordance with information given under PRECAUTIONARY STATEMENTS.

In the event of spillage or leakage, soak up material with absorbent clay, sand, sawdust, or other absorbent material. Scrape up and dispose of in accordance with information given under PESTICIDE DISPOSAL. Repackage and relabel useable product in a sound container. In case of fire or other emergency, report at once by toll-free telephone to 800-424-9300.

DISPOSAL

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Container Disposal: Triple rinse (or equivalent). Then 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, stay out of smoke.

GENERAL INFORMATION

Carbaryl 4L is a suspension of microfine carbaryl insecticide in an aqueous medium. It readily disperses in water to form a spray which, when applied by air or ground equipment, resists erosion by rainfall or overhead irrigation. The directions on this tabel are based on tests and field experience relating to (a) effectiveness, (b) possible injury to plants, and (c) residues in food, feed and milk. READ THIS LABEL BEFORE USE. STRICTLY OBSERVE LABEL DIRECTIONS AND CAUTIONS, AND APPLICABLE FEDERAL AND STATE REGULATIONS. Treated areas may be re-entered immediately after the spray has dried.

Preharvest and Grazing Use Information and Limitations

Tolerances established under the Federal Food, Drug and Cosmetic Act permit the sale of crops bearing probable carbaryl residues when this product is used in accordance with label directions. If used as directed, treated forage may be grazed or used as food for dairy and meat animals without causing illegal residues in meat or milk. To avoid illegal residues to crops, milk and meat, do not apply at greater rares and more frequent intervals than are stated on the label.

Plant Response Precautions

To avoid possible injury to tender foliage, do not apply to wet foliage or when rain or high humidity is expected during the next two days. Carbaryl injures Boston Ivy, Virginia creeper and maidenhair fern. During early season, it may also injure Virginia and sand pines. Observe label instructions on apple thinning and on combinations with certain herbicides on rice and soybeans.

Spray Preparation

TO ASSURE A UNIFORM PRODUCT, AGITATE, STIR OR RECIRCULATE ALL CARBARYL 4L CONTAINERS PRIOR TO USE. Remove oil, rust, scale, pesticide residues and other foreign matter from mix tanks and entire spray system. Flush with clean water. Fill spray or mix tank with 1/2 to 3/4 the desired amount of water. Stan mechanical or hydraulic agitation. Slowly add the required amount of Carbaryl 4L and then the remaining volume of water. Include rinse water from container. Dilution of I volume of Carbaryl 4L with 1 volume of water will allow maximum resistance to wash off by rainfall or overhead irrigation. Dilutions higher than 1:11 are not recommended where residual insect control from wash off resistance is desired. Prepare only as much spray mixture as can be applied on the day of mixing. MAINTAIN CONTINUOUS AGITATION DURING MIXING AND APPLICATION TO ASSURE A UNIFORM SUSPENSION. DO NOT STORE SPRAY MIXTURES FOR PROLONGED PERIODS.

Compatibility

Carbaryl 4L. when diluted with an equal volume of water, is compatible with a wide range of pesticides. It is not compatible with diesel fuel, kerosene, fuel oil or aromatic solvents. If compatibility of Carbaryl 4L with another product and the resulting crop response is unknown, it should be tested on a small scale. Curdling, precipitation, greasing, layer formation or increased viscosity are symptoms of incompatibility. WHEN PREPARING COMBINATION SPRAYS, FIRST ADD CARBARYL 4L TO AT LEAST AN EQUAL VOLUME OF WATER. MIX THOROUGHLY AND THEN ADD COMBINATION PRODUCTS TO THE MIXTURE. DO NOT APPLY TANK MIX COMBINATIONS UNLESS YOUR PREVIOUS EXPERIENCE INDICATES THE MIXTURE IS EFFECTIVE AND WILL NOT RESULT IN APPLICATION PROBLEMS, EXCESSIVE RESIDUES, OR PLANT INJURY. Unstable under highly alkaline conditions. Not effective If used with alkaline material such as Bordeaux, lime-sulfur and casein lime spreaders.

Application

On all crops use sufficient gallonage to obtain thorough and uniform coverage. Calibrate spray equipment to deliver the required amount. The flow rate of Carbaryl 4L diluted 1:1 with water is similar to water. Use 50 mash slotted strainers in spray system and behind nozzles. To clean spray system after use, drain and flush with water.

Insect Control

Apply when insects or their damage appears. To maintain control, repeat at 7 to 14 day intervals or as necessary unless a shorter interval is specified below. Where a dosage range is indicated, use lower rate on young plants and early instars and higher rate on mature plants, advanced instars and adults. Thorough and uniform spray coverage is essential for effective control.

Carbaryl 4L does not control spider mites. If spider mites are a problem, use a registered miticide.

Crop Rotation

Subsequent planting of food and feed crops In treated soil must be made with crops on this or other carbaryl labels.

DIRECTIONS FOR USE THROUGH SPRINKLER IRRIGATION SYSTEMS

Apply this product only through sprinkler irrigation systems including center pivot and solid set. Do not apply this product through any other type of irrigation system.

Spray Preparation: Remove scale, pesticide residues, and other foreign matter from the chemical tank and entire injector system. Flush with clean water.

Application Instructions: First prepare a suspension of Carbaryl 4L in a mix tank. Fill tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of Carbaryl 4L, and then the remaining volume of water. (Suspension concentrations using the appropriate dosage per acre recommended on this label of Carbaryl 4L per 1 to 4 gallons of water are recommended). Then set sprinkler to deliver 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of Carbaryl 4L into the Irrigation water line so as to deliver the desired rate per acre. The suspension of Carbaryl 4L should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. If you should have any other questions about calibration, you should contact State Extension Service specialist, equipment manufacturers or other experts.

Note: When treatment with Carbaryl 4L has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the chemical off the crop.

GENERAL PRECAUTIONS FOR APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

Maintain continuous agitation in mix tank during mixing and application to assure a uniform suspension.

Greater accuracy in calibration and distribution will be achieved by injecting a larger volume of a more dilute solution per unit lime.

The 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 connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shutdown. 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 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. Do not apply when wind speed favors drift beyond the area intended for treatment.

Do not apply when wind speed favors drift, when system connection or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

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

Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation shall shut the system down and make necessary adjustments should the need arise.

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

FORAGE, FIELD AND VEGETABLE CROPS

Apply in sufficient spray volume to obtain thorough coverage. Where maximum wash off resistance is, use up to 1:1 (vol/vol) dilution with water. Do not dilute greater than 1:11 where wash off resistance is desired. To prepare small volumes of spray, use 1 tablespoon (1/2 fluid ounce) of CARBARYL 4L per gallon of water where rates of 1 quart per acre or 1 quart per 100 gallons are indicated in the table below.

CROP	INSECT	QUARTS OF CARBARYL PER ACRE	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
All Forage, Field and Vegetable Crops in this Section	Grasshoppers	½ to 1½	See specific Forage, Field or Vegetable Crop	Use ½ to 1 quart for nymphs on small plants or sparse vegetation in wastelands, rangeland, ditch banks and borders. Use 1 to 1½ quarts for adult grasshoppers or applications to dense vegetation.
Alfalfa Clovers	Blister beetles, Mexican bean beetle	½ to 1	7 (Alfalfa) 7 (Clover)	Observe plant response precautions.
,	Alfalfa caterpillar, Bean leaf beetle, Cucumber beetles, Green cloverworm, Japanese beetle, Leafhoppers, Three cornered alfalfa hopper, Thrips, Velvetbean caterpillar	1		For alfalfa weevil larvae if pretreatment damage is extensive, cut alfalfa and treat the stubble. Use higher rate in areas east of the Rocky Mountains. On dense growth, use 25-40 gallons per acre with ground equipment to ensure adequate coverage.
-	Alfalfa weevil larvae, Armyworm, Cloverhead weevil, Corn earworm, Cutworms, Egyptian alfalfa weevil larvae, Essex skipper, European alfalfa beetle, Fall armyworm, Lygus bugs, Stink bugs, Webworms, Yellow- striped armyworm	1 to 1½		Apply only once per cutting.
Asparagus	Asparagus beede	1 to 2	l l	Treat ferns or brush growth. Do not treat more than once every 3 days.
	Apache cicada, Asparagus beetle	2 to 4	Post-harvest application only	, ,
Beans (including blackeyed peas, cowpeas, crowder or southern peas, dry beans, green beans, lima beans, navy beans and snap beans) Lentils (except California)	Blister beetles, Mexican bean beetle	½ to 1	3 (succulents) 21 (dried) 14 (forage) 21 (hay)	Observe plant response precautions.
California	Alfalfa caterpillar, Bean leaf	1	 	

CROP	INSECT	QUARTS OF CARBARYL PER ACRE	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
	beetle, Cucumber beetles, Flea beetles, Green cloverworm, Japa-nese beetle, Leafhoppers, Three cornered alfalfa hopper, Thrips, Velvet-bean caterpillar, Western bean cutworm			
	Armyworm, Corn ear-worm, Cutworms, European corn borer, Fall armyworm, Stink bugs, Tarnished plant bug, Webworms	1 to 1½		
	Alfalfa looper	11/2		
	Cowpea curculio	2]	
	Corn earworm, Lima bean pod borer, Lygus bugs, Stink bugs	2		CALIFORNIA ONLY
Cabbage, Broccoli, Brussels Sprouts, Cauliflower, Kohlrabi	Flea beetles, Harlequin bug	½ to 1	3	
	Armyworm, Corn earworm, Diamondback moth, Fall armyworm, Imported cabbageworm	1 to 2		
Chinese cabbage, Collards, Hanover salad, Horseradish, Kale, Mustard greens, Radishes, Rutabagas, Turnips	Flea beetles, Harlequin bug, Leafhopper	½ to 1	14 (Chinese cabbage, kale, collards, mustard greens) 7 (Horseradish, radishes, rutabagas, turnips)	
	Aster leafhopper	1 to 11/2]	
	Armyworm, Corn earworm, Fall armyworm, Imported cabbageworm, Stink bugs, Tarnished plant bug	1 to 2		
Carrots, Celery (except California), Parsnips, Parsley	Flea beetles, Leafhoppers	½ to 1	7 (carrots, parsnips) 14(parsley, celery)	Treat on a 7 day schedule.
	Aster leafhopper, Lygus bugs, Spittlebugs	1 to 1.½		
	Armyworm, Corn ear-worm, Fall armyworm, Stink bugs, Tarnished plant bug	1 to 2		;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Corn (field, sweet, pop)	Armyworm, Chinch bugs, Corn earworm, Corn rootworm adults, European corn borer, Fall armyworm, Flea beetles, Japanese beetle, Sap beetles, Southwestern corn borer, Leafhoppers	1 to 2	Field & Pop 14 (forage, silage) 48(grain, fodder) Sweet 2 (ears) 14 (forage) 48 (fodder)	OBSERVE BEE CAUTION. For insects attaching sliks and ears, apply at 1 to 6 day intervals starting when first silks begin to dry. For larvae in whorl and follage feeders, apply as necessary. Optimum training and

CROP	INSECT	QUARTS OF CARBARYL PER ACRE	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIREC	TIONS
				good coverage are effective control. For chinch bug control, a 20 gallons of water ground and direct specially to provide coverage. For European corn borer not apply in less than water per acre by gallons of water per ground.	or optimum oply at least oper acre by oray toward thorough optimum control, do 3 gallons of air and 15
	Western bean cutworm	2		Treat when infestati 15% and at 90% to emergence. Treat 100% silk emergence effectiveness.	100% tassel ment after
	Cutworms	2 to 61/2		Apply in a 12-inch b fluid ounces per 1,00 of row, in at least 1 water per acre. Fo application, use 6.5 least 20 gallons (gr gallons (air) of water	O linear feet 5 gallons of or broadcast quarts in at ound) or 5
Flax, Proso Millet (except California)	Armyworm	1 to 1 1/2	42	Do not graze treate harvest for dairy fe crop maturity.	
Forage Grasses, Pasture	Armyworm, Black grass bugs, Chinch bugs, Essex skipper, Fall armyworm, Range caterpillars, Range crane fly, Striped grass looper, Thrips	1 to 1 1/2	O (aerial application) 14 (ground application)	To control thrips in g for seed, use high sp to improve penetration. Apply a minimu applications per year least 14 days applications. Carls swath to avoid over-a	m of 2 . Allow at between efully mark
	White grubs (green June beetle)	1½ to 2			
Garden beet, Spinach, Swiss chard	Flea beetles, Harlequin bug, Leafhoppers	½ to 1	7 (garden beet)	Treat on a 5 to 7 day	schedule.
	Aster leafhopper	1 to 1½	14 (Spinach, Swiss chard)		
	Armyworm, Corn earworm, Fall armyworm, Stink bugs, Tarnished plant bug	1 to 2			
Peanuts	Blister beetles, Mexican bean beetle	½ to 1	14	Observe plant precautions.	response
	Alfalfa caterpillar, Bean leaf beetle, Cucumber beetles, Green cloverworm, Japanese beetle, Leafhoppers, Rednecked peanutworm, Three cornered alfalfa hopper, Thrips, Velvetbean caterpillar	1			

CROP	INSECT	QUARTS OF CARBARYL PER ACRE	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
	Armyworm, Corn ear-worm, Fall armyworm, Stink bugs, Webworms	1 to 1½		
	Whitefringed beetle adults, cutworms	2		
Peas	Colorado potato beetle, Leafhoppers	1	3 (fresh)	
	Armyworms	1 to 1½	21 (dried)	
	Alfalfa caterpillar, Cutworms, Pea leaf weevil, Pea weevil, Yellow striped armyworm	1½		
	Alfalfa looper	21/2		WASHINGTON STATE ONLY
Potato, Tomato, Eggplant, Pepper	Colorado potato beetle, Flea beetle, Leafhoppers	½ to 1	7 (potato) 3 (tomato, pepper, eggplant)	Thorough coverage is essential to effectively suppress stink bugs. When disease transmission is suspected, monitor fields following application and retreat if reinfestation occurs.
	European corn borer, Fall armyworm, Lace bugs, Stink bugs, Tarnished plant bug, Tomato fruitworm, Tomato hornworm, Tomato pinworm	1 to 2		
	Cutworms	2		
Prickly Pear Cactus	Cochineal scale (crawlers)	2	1	Apply as needed at 7-10 day intervals. Do not make more than 7 applications per season.
Rangeland -	Black grass bug, Mormon cricket, Range cater-pillars, Range crane fly	½ to ¾	O (aerial application) 14 (ground application)	For aerial applications only. Apply a maximum of 2 applications per year. Allow at least 14 days between applications. Carefully mark swath to avoid overapplication.
Rice	Armyworm, Chinch bugs, Fall armyworm, Stink bugs	1 to 1½	14	DO NOT APPLY PROPANIL HERBICIDE WITHIN 15 DAYS BEFORE OR AFTER CARBARYL 4 FLOWABLE APPLICATION OR PLANT INJURY WILL RESULT (Mississippi Delta and Texas) DO NOT USE ON FICE FIELDS IN WHICH CRAYFISH AND/OR CATFISH FARMING IS INCLUDED IN THE CULTURAL PRACTICE (Mississippi Delta and Texas) CAUTION: May kill shririp and crabs. Do not use in areas where these are important resources.
	Armyworm, Leafhoppers, Tadpole shrimp	2		CALIFORNIA ONLY. For optimum tadpole sarimp control, apply to water v.h.e., pest first appears.

CROP	INSECT	QUARTS OF CARBARYL PER ACRE	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
Sorghum (milo, grain sorghum, and hybrids)	Armyworm, Chinch bugs, Corn earworm, Fall armyworm, Stink bugs, Webworms	1 to 2	21 (grain, fodder) 14 (grazing, forage)	Direct spray into forming heads for optimum insect control.
	Sorghum midge, Southwestern corn borer	1½		Treat for sorghum midge when 25 to 30 percent of heads have emerged from boot and are in bloom. Repeat application 3 to 5 days later if adults are still active. A third application may be necessary in late planted sorghum or if midge are abundant. For chinch bugs use high gallonage ground application directed at the base of plants. This product may not effectively control the Southern green stink bug.
	Cutworms	2		, g .
Soybeans	Bean leaf beetle, Cucumber beetles, Green cloverworm, Mexican bean beetle, Velvetbean caterpillar	½ to 1	21 (grain) 14 (grazing, forage)	DO NOT APPLY A COMBINATION OF CARBARYL 4L AND 2,4-DB HERBICIDES TO SOYBEANS. For light to moderate populations. To control heavy infestations, use higher rates.
	Corn earworm	½ to 1½		,
	Blister beetles, Grape colaspis, Mexican bean beetle	½ to 1	}	
	Alfalfa caterpillar, Bean leaf beetle, Cucumber beetles, Green cloverworm, Japanese beetle, Leafhoppers, Three cornered alfalfa hopper, Thrips, Velvetbean caterpillar	1		
	Armyworm, Corn earworm, Cutworms, Fall armyworm, Stink bugs, Webworms	1 to 1½		
	Painted lady (Thistle caterpillar), Saltmarsh caterpillar, Woolleybear caterpillar, Yellow striped armyworm	1½ to 2½		
Sugar beets	Armyworm, Beet leaf beetle, Fall armyworm, Flea beetles, Leafhoppers, Webworms	1 to 1½	28 (roots, forage)	,,,,,
	Cutworms	11/2		· · · · · · · · · · · · · · · · · · ·
Sunflower (except California)	Cutworms	11/2	60	,,,,
	Armyworm, Fall army- worm, Sunflower moth	1½ to 2	}	

CROP	INSECT	QUARTS OF CARBARYL PER ACRE	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRE	CTIONS
	beetle				
Sweet Potato (except California)	Corn earworm, Cucumber beetles, Flea beetles, Sweet potato hornworm, Tortoise beetles	1 to 2	14	Apply as a foliar spra	ay as needed.
	Yellow striped armyworm	2			
	Sweet potato weevil	1 to 2		Full coverage of plar Use lower rate on and higher rate on n	young plants
Торэссо	Tobacco flea beetle	2 Tbs/gal or 1 qt 50 gals and apply 6 gals./100 sq. yards	0	IN PLANT BEDS To prevent injury, a applications.	void excessive
	Green June beetle grubs	8 qts/100 gals		Apply only to are have uprooted by s drench with 50 to per 100 square yard	prinkling as a 100 gallons
	Budworms, Fall armyworms, Flea beetles, Hornworms, Japanese beetle, June beetle, Suckfly	1 to 2		IN FIELDS Use lower rate on (up to knee height) 10 gallons of prepa acre. Begin treatments where small. If late season are necessary, allo before priming or compare the season of the s	. Use at least ired spray per sen worms are in applications w three days
Wasteland, Rights-of- way, Hedgerows, Ditchbanks, Roadsides	Black grass bug, Mormon cricket, Range caterpillars, Range crane fly	½ to 1	O (aerial) 14 (ground)	applications per ye least 14 day	rs between once allow hay within 14 oplication by treated area cut for hay of Carefully mark
Wheat (including triticale) (except California)	Flea beetles	½ to 1	21 (grain, straw) 7 (forage)		
,	Cereal leaf beetle	1		Application is eff eggs, larvae, and cereal leaf beetle.	
	Armyworm, Fall armyworm	1 to 1½			1 1 1 1 1 1
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TREE FRUIT AND NUT CROPS

For dilute sprays, apply the specified dosage per 100 gallons of water. For concentrate and aerial sprays, increase the concentration of CARBARYL 4L in the spray mixture to apply an amount per acre equivalent to that in a dilute spray. The optimum spray gallonage will depend on tree size, density and stage of growth. Typical spray gallonages per acre range from 200-300 gallons for dilute sprays; 30-100 gallons for concentrate sprays and 10-25 gallons for aerial sprays. Do not exceed maximum label rate per acre per application.

CROP	QUARTS OF CARBARYL/100 GALS.	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
APPLE THINNING			Apply 1 full coverage dilute spray between 10 and 25 days after full bloom. If factors such as tree age, variety, nutrition, previous crop pruning, bloom and degree of set flavor, excessive fruit thinning with CARBARYL 4L, exercise caution to avoid possible yield reduction.
Apples only	¼ to ½	3	For easily thinned varieties including Cortland, Grimes, Jonathan, McIntosh, Orleans, Rome Beauty, Puritan, Red Delicious, Winesap, Yellow Newton.
	½ to 1		For difficult to thin varieties including Baldwin, Ben Davis, Duchess, Early McIntosh, Golden Delicious, Lady Apple, Northern Spy, Rhode Island Greening, Steele Red, Turley, Wealthy, Yellow Transparent, and York Imperial.

CROP	INSECT	QUARTS OF CARBARYL/ 100 GALS.	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
Almond	Peach twig borer, San Jose scale, Fruittree leafroller	1	14	Apply in "popcorn" or petal fall stages and again when the May brood of the peach twig borer begins to hatch or thereafter as needed.
-	Navel orangeworm			Time early and mid-season applications to correspond to moth flight peaks. Make a fate season application at initiation of hull split or up to 10% hull split. Do not apply more than 5 quarts per acre.
Apples, Pears	Apple aphid, Apple maggot, Apple rust mite, Apple sucker, Bagworms, California pearslug (pear sawfly), Eastern tent caterpillar, European apple sawfly, Eyespotted bud moth, Forbes scale, Fruittree leafroller, Green fruitworm, Gypsy moth, Japanese beetle, Lecanium scales, Lesser appleworm, Lygus bugs, Orange tortrix, Oystershell scale, Pearleaf blister mite, Pear psylla, Pear rust mite, Periodical cicada, Plum curculio, Redbanded leafroller, Rosy apple aphid, San Jose scale, Tarnished	¾ to l	3	OBSERVE BEE CAUTION. To avoid undesired apple thinning, delay use until at least 30 days after full bloom. For psylia control, apply when eggs hatch or young nymphs are present. To centrol scale insects, apply when crawlers are present.

CROP	INSECT	QUARTS OF CARBARYL/ 100 GALS.	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
	plant bug, Tentiform leafminers, Woolley apple aphid, Yellowhead			
·	Apple mealybug, Apple aphid, Codling moth, White apple leafhopper	½		
Chestnuts (except California)	Chestnut weevil	2 to 3	0	Make 4 applications at weekly intervals beginning in late July for adult chestnut weevil control. Last application should be made prior to shuck split.
Citrus Fruit (such as grapefruit, lemons, limes, oranges, tangelos, tangerines, citrus citron, kumquats, and hybrids)	Avocado leafroller, California orangedog, Citrus cutworm, Citrus root weevil, Fruittree leafroller, Orange tortrix, Western tussock moth, West Indian sugarcane borer (adults)	1	5	Do not apply more than 20 quarts of CARBARYL 4L per acre per application. Do not apply less than 10 gallons of dilute spray mixture per mature tree. May be mixed with petroleum oils commonly used on citrus.
	Black scale, Brown soft scale, California red scale, Citricola scale, Citrus snow scale, Yellow scale	¾ to 1		
Filbert	Filbert aphid, Filbert leafroller, Filbertworm	1	14	Apply when leafroiler eggs are hatching. Repeat on first appearance of adult filbert moths and again 3 to 4 weeks later.
Olives	Olive scale	¾ to 1	14	For optimum scale controlapply mixture when crawlers are present. Do not exceed 2 applications per year. Do not apply more than 15 quarts of CARBARYL 4L per acre per application.
Peaches, Apricots, Nectarines	Apple pandemis, Codling moth, Cucumber beetle, European earwig, Fruittree leafroller, Gypsy moth, Japanese beetle, June beetle, Lecanium scales, Lesser peachtree borer, Olive scale, Orange tortrix, Oriental fruit moth, Peach twig borer, Periodical cicada, Plum curculio, Redbanded leafroller, San Jose scale, Tarnished plant bug, Tussock moth, Variegated		3	Do not apply more than 6 quarts of CARBARYL 4L per acre application to apricots. For optimum scale control, apply when crawlers are present. Spray limbs and trunks thoroughly, weekly during moth flight.
	leafroller			1
Pecans	Black margined aphid, Fall webworm, Hickory shuckworm, Lesser webworm, Pecan leaf phylloxera, Pecan stem phylloxera, Pecan nut casebearer, Pecan spittlebug, Pecan weevil, Twig girdler, Walnut caterpillar	1 to 21/2	14	Do not apply more, then, 7.2 quarts of CARBARYL 4L per acre per application,
Pistachios	Naval orangeworm	½ to 2	14	Apply dilute volumes of 150 to 300 gallons of mixed spray pe

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CROP	INSECT	QUARTS OF CARBARYL/ 100 GALS.	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
				acre for full coverage at onset of hull split.
Plums, Prunes, Cherries	Black cherry aphid, Brown soft scale, Cherry fruit-worm, Cherry maggot, European earwig, Eyespotted budmoth, Forbes scale, Fruittree leafroller, Green fruitworm, Gypsy moth, Japanese beetle, Lecanium scales, Lesser peachtree borer, Medaly plum aphid, Oystershell scale, Peach twig borer, Plum curculio, Prune leaf-hopper, Redbanded leafroller, Rose chafer, San Jose scale, Variegated leafroller	1	3	Do not apply more than 6 quarts of CARBARYL 4L per acre per application. For optimum scale control, apply when crawlers are present. For lesser peach tree borer control, spray limbs and tree trunks thoroughly, weekly during moth flight.
	Codling moth, Eastern tent caterpillar, Orange tortrix, Tussock moth	34		
Walnut	Calico scale, European fruit lecanium, Filbert-worm, Fruittree leafroller, Frosted scale, Codling moth	1/2	14	Apply 5 quarts of CARBARYL 4L spray per acre for mature trees. For codling moth, apply first spray when average cross sectional diameters of developing nuts are ½ to ¾ inch. Repeat during middle or late June as needed.
	Naval orangeworm	1		For naval orangeworm, time application to coincide with peak egg laying activity at time of or following hull split.
. "	European earwig	2		Spray tree trunks to point of run-off.

SMALL FRUIT CROPS

Recommended dosages refer to quarts of CARBARYL 4L per acre. The optimum spray gallonage will depend on plant size, density and stage of growth. Typical spray gallonages per acre range from 100-300 gallons for dilute sprays, 30-100 gallons for concentrate sprays, and 10-25 gallons for aerial sprays. Do not exceed maximum label rate per acre per application.

CROP	INSECT	QUARTS OF CARBARYL PER ACRE	PRE-HARVEST INTERVAL (DAYS)	SPECIFIC DIRECTIONS
Blackberries, Raspberries, Dewberries (including boysenberries and loganberries)	European raspberry aphid, Japanese beetle, Leaf- hoppers, Leafrollers, Rose chafer, Snowy tree cricket	1 to 2	7	
	Omnivorous leafroller, Raspberry sawfly	2		CALIFORNIA ONLY
Blueberries	Blueberry maggot, Cherry fruitworm, Cranberry fruitworm, European fruit lecanium, Japanese beetle	1½ to 2	7	Apply 3 weeks before harvest and repeat as necessary.
Cranberries	Cutworms, Cranberry fire-	1½ to 3	7	Apply in late bloom and as

	worms, Cranberry fruit- worms, Cranberry twig girdler, Elm spanworm, Japanese beetle, Leaf- hopper, Rose chafer, Spagamothus worm			needed at 7 to 10 day intervals. CAUTION: May kill shrimp and crabs. Do not use in areas where these are important resources.
Grapes	European fruit lecanium, Grape leaffolder, Grape leafhopper, Western grapeleaf skeletonizer, Western yellowstriped armyworm	1 to 2	7	Apply before first brood leaffolder larvae emerge from rolls.
	Cutworms, Eightspotted forester, Grape berry moth, Japanese beetle, June beetle, Orange tortrix, Omnivorous leaf-roller, Redbanded leaf-roller, Saltmarsh caterpillar	2		
Strawberries	Flea beetle, Meadow spittlebug (strawberry fruitworm), Omnivorous leaftier, Strawberry clipper, Strawberry bud weevil, Strawberry leafroller, Strawberry weevil	1 to 2	1	CARBARYL 4L may injure Early Dawn and Sunrise varieties on the Delmarva Peninsula.

TREES AND ORNAMENTALS

For control of certain insects on trees, ornamentals, woody plants and shrubs, apply the recommended amount of CARBARYL 4L in 100 gallons of water. Use hand or power-operated sprayer to wet leaves and twigs to the dripping point. Do not use on Boston ivy, Virginia creeper and Maidenhair fern. During early season, it may also injure Virginia and sand pines.

PESTS	QUARTS OF CARBARYL 4L/ 100 GALS	SPECIFIC DIRECTIONS
Ants, Apple aphid, Armyworm, Azalea leafminer, Bagworms, Birch leafminer, Bister beetle, Boxelder bug, Boxwood leafminer, Brown tail moth, Cankerworms, Catalpa sphinx, Chiggers, Cutworms, Cypress tip moth, Eastern spruce gall adelgid, Elm leaf aphid, Elm leaf beetle, Elm spanworm, Eriophyid mites, European pine shoot moth, Fall armyworm, Flea beetles, Fuchsia gall mite, Fullar rose beetle, Gall midges, Gall wasps, Greenstriped mapleworm, Grasshoppers, Gypsy moth, Hackberry nipplegali maker, Holly bud moth, Holly leafminer, Jackpine budworm, Japanese beetle, Jeffrey pine needleminer, June beetles, Lace bugs, Leafhoppers, Leafrollers, Locust borer, Maple leafcutter, Mealybugs, Mimosa webworm, Nantucket pine tip moth, Oak leafminers, Oak leaf skeletonizer, Oak moth, Oak complex, Oleander caterpillar, Olive ash borer, Orangestriped oakworm, Orange tortrix, Periodical cicada, Pine looper, Pine sawfly, Pine spittlebug, Pitch pine tip moth, Plant bugs, Poinsettia hornworm, Psyllids, Puss caterpillar, Redhumped oakworm, Rose aphid, Rose chafer, Roseslug, Saddled prominent, Sawflies (exposed), Scale insects, Sowbugs, Spiney elm caterpillar, Springtails, Spruce needleminer, Subtropical pine tip moth, Tent caterpillars, Thrips (exposed), Thorn bug, Ticks, Tree hoppers, Walnut caterpillar, Webworms,	1	Observe plant response precautions. Apply dilute sprays to obtain thorough coverage of upper and lower leaf surfaces. To control scale insects, treat trunks, stems and twigs in addition to plant foliage. For optimum worm control, treat when in early instars. Addition of a sticker may improve residual control. Applications for control of maple leafcutter on sugar maple should be made when larvae are in 2nd instar after mining and as cases are being formed. DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATIONS OR UNTIL SPRAYS HAVE DRIED.

PESTS	QUARTS OF CARBARYL 4L/ 100 GALS	SPECIFIC DIRECTIONS
Western hemlock looper, Willow leaf beetles, Yellow poplar weevil		
Balsam twig aphid, Cooley spruce gall adelgid, Douglas fir tussock moth, Spruce budworm, Western spruce budworm	1 to 2	Use the higher rate when large larvae or heavy populations are present.
lps engraver beedes, Mountain pine beetle, Roundheaded pine beetle, Spruce beetle, Western pine beetle	16	Effective for beetle control or as a protective treatment. Apply 1 gallon of spray per 50 square feet of bark prior to beetle flight of host tree attack. Treat tree trunks from ground level up, until trunk diameter is less than 5 inches. Repeat treatments as needed.
Elm bark beetle		Apply approximately 20 to 30 gallons of spray mixture for each 50 feet of elm tree for thorough coverage of all bank surfaces on trunks, limbs and twigs.

LAWN AND RECREATIONAL AREAS

For control of certain turfgrass pests, apply the recommended rates in sufficient spray volume for thorough coverage and turf thatch penetration. Where a dosage range is indicated, use the higher rate on large pest populations, advanced instars and dense vegetation. Repeat treatment as necessary. Do not allow public use of treated areas during applications or until sprays have dried.

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		AMOUNT OF CARBARYL 4L		
SITE	PESTS	FL. OZ. 1000 SQ. FT.	QUARTS/ACRE	SPECIFIC DIRECTIONS
Turfgrasses	Ants, Armyworm, Centipedes, Chiggers, Cutworms, Earwigs, Essex skipper, European chafer, Fail armyworm, Fiery skipper, Grass-hoppers, Green June beetle grub, June beetles, Leafhoppers, Lucerne moth, Millipedes, Mosquitos (adults), Sowbugs, Spittlebugs, Springtails, Ticks, Yellowstriped armyworm	1½ to 3	2 to 4	For Armyworm, Cutworm and Fall Armyworm Control: Do not irrigate treated areas following insecticide application. For Green June Beetle Grub Control: Make applications when grubs are feeding near the soil surface. Water or irrigate turf grasses soon after treatment.
	Chinch bugs, Sod webworm (lawn moths)	4.4 to 6	8	For Chinch Bug Control: Treat entire grass area rather than just damaged areas. Irrigation of turfgrass area before treatment will aid in penetration of insecticide into turfgrass. For Sod Webworm Control: Do not irrigate treated areas following insecticide application.
	Bluegrass billbug, European crane fly, Fleas, White grubs (such as Japanese beetle, Chafer beetle, and Phyllophaga spp. larvae)	6	8	For European Crane Fly Control: Treatments should be applied in early spring, April 1 to April 15, or as recommended by local Agricultural Extension Service agents. Water or irrigate turfgrasses thoroughly soon after treatment. For White Grub Control: Applications should be made when grubs are feeding near the soil surface, usually during late March through May, or July to early September, or as recommended by local Agricultural Extension Service agents. Water or irrigate turfgrasses thoroughly soon after treatment.

IMPORTED FIRE ANT CONTROL

SITE	AMT OF CARBARYL 4L/ VOLUME OF WATER	SPECIFIC DIRECTIONS
Lawns, Cemeterles and Recreational Areas (including turf, golf courses, and parks), Pastures, Rangeland, Forested Lands and Wasteland	1½ qts./100 gals. or 1½ Tbs./gal.	Apply a total of 2 gallons of the diluted solution over the surface of each mound or at least 1 quart per 6 inches of mound diameter using a bucket, can or other appropriate equipment. Thoroughly wet mound and surrounding area to a 4 ft. diameter (12 sq. ft.). Do not disturb mourds prior to treatment. Pour solution from a height of about three feet to give sufficient force to break mound apex and flow into ant tunnels. For best results, apply In cool weather, 65°F to 80°F, or in early morning or late evening hours. Repeat applications if mound activity resumes after 10 days. Truat new mounds as they appear. Pressurized sprays may disturb the and and cause migration, reducing product effectiveness. DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATIONS OR UNTIL SPRAYS HAVE DRIED.
Nursery Stock, Vegetable Transplants, Foliage Plants and Bedding Plants	1 ½ qts./100 gals.	DO NOT USE ON ANY FOOD CROP NOT LISTED ON THE LABEL.

SITE	AMT OF CARBARYL 4L/ VOLUME OF WATER	SPECIFIC DIRECTIONS
		Do not make more than one application, either as a root-dip or a drench treatment (applied to the point of saturation). Avoid contact with foliage and treat only the growing media when using on bedding plants.

ADULT MOSQUITO CONTROL

For dilute spray ground applications to trees (including shade trees, shelter belts, forests, plantations, parks and recreational areas), ornamentals, woody plants and shrubs, apply the specified dosage per 100 gallons of water. For concentrate spray ground applications, apply the specified dosage per acre in sufficient spray volume to provide thorough coverage. To prepare small volumes of spray, use I Tablespoon (½ fluid ounce) of CARBARYL 4L per gallon of water, where rates of 1 quart are indicated. Do not allow public use of treated areas during applications or until sprays have dried.

SITE	QTS OF CARBARYL 4L PER 100 GALS.	SPECIFIC DIRECTIONS
Pastures, Rangelands, Yards, Parks, Recreational Areas, Logging Camps, Military Posts and Adjacent Forested Lands or Wastelands	¼ to 1 (½ to 1 Tbs/Gal.)	DO NOT USE WHERE SHRIMP AND CRABS ARE IMPORTANT RESOURCES. OBSERVE BEE CAUTION. Treat shrubbery and areas where adult mosquitoes congregate. Treat when adult mosquitoes are active in early mornings or late evening. Repeat at 7 to 10 day intervals. Use ¼ to ½ quart per 100 gallons in mistblowers, ½ to 1 quart per acre in aerial sprays and 1 quart per acre in low pressure ground sprayers.
	25	For residual control in subtropical regions, apply 4 gallons of prepared spray per 2,000 square feet of surface area. Repeat in 3 to 6 months or when necessary.

PEST CONTROL IN AND AROUND BUILDINGS

Staining may occur on certain surfaces such as stucco, brick, cinder block, and wood. Therefore, applications of CARBARYL 4L insecticide to surfaces where a noticeable residue or discoloration is objectionable should be avoided. Do not apply to carpets or draperies as staining may occur. Care should also be exercised to avoid spotting of wallpaper and fabrics.

Do not use this product in commercial food areas of food handling establishments, restaurants or other places where food is prepared or processed. Do not use in serving areas while food is exposed.

PESTS	OUNCES CARBARYL/GALLON	SPECIFIC DIRECTIONS
Ants, Crickets, Firebrats, Silverfish	3	Apply as fine, low pressure (20 psi) spot spray or as crack and crevice application to areas where these pests hide. For ants, apply to ant trails, around doors and windows and other places where ants enter the premises.
Bees, Wasps	3	Thoroughly spray nest and entrance and surrounding areas where insects alight. It is generally advisable to spray the nests in the evening when the insects are less active and have returned to the nest. Check nest carefully one or two days after spraying to ensure complete kill, then remove and destroy nest to prevent emergence of newly hatched insects.
Brown dog ticks, Fleas	3	Thoroughly spray infested area. DO NOT TREAT ANIMALS.
Carpenter ants	3	Apply to ant trails, around doors and windows and other places where ants enter premises. Where possible, apply this product directly to ant nest or infested wood.
Centipedes, Earwigs, Millipedes, Scorpions	3	Apply around water pipes, doors and windows, and other piaces where these pests may enter premises. Spray baseboards, storage areas, garages, carports, becaments and other areas where these pests are found.
Cockroaches	3	Apply as a fine, low pressure (psi) spot spray or as crack and

PESTS	OUNCES CARBARYL/GALLON	SPECIFIC DIRECTIONS
		crevice applications to areas where these pests hide. Efficacy varies with species sensitivity. This product is generally not highly effective in controlling German cockroaches.
Spiders	3	Apply to infested baseboards, window and door frames, corners, pipes, storage areas, attics and under eaves. Make spot applications to other areas where these pests are present.

OUTDOORS

Perimeter treatment for control of ants, bees and wasps, brown dog ticks, carpenter ants, centipedes, cockroaches, crickets, earwigs, firebrats and silverfish, fleas, millipedes, scorpions and spiders	16 oz./50 gals. water	Apply via power spray or other spray method. To help prevent infestations of buildings by pests, outside perimeter treatment should be in a band 6 to 10 feet wide and confined to shrub beds, foundation plantings, and lawn or soil areas immediately adjacent to the structure. Direct application to structures should be minimal and restricted to cracks and crevices and other areas where insects tend to congregate.
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POULTRY ROOSTS AND BUILDINGS ONLY

POULTRY QUARTERS	QTS OF CARBARYL 4L/ 100 GAL.	SPECIFIC DIRECTIONS
Bed bug, Chicken mite, Flea, Lice, Northern fowl mite	4	DO NOT TREAT POULTRY OR GAME BIRDS. Apply 1 to 2 gallons of spray mixture per 1,000 square feet of wall, litter or roost surface. Force spray into cracks. Repeat as needed. Avoid contamination of nests, eggs and feeding and watering troughs.
Fowl tick	16	Ventilate while spraying. Do not treat premises within 7 days of slaughter.
Lesser mealworm	50	Apply 2 gallons of spray mixture per 1,000 square feet of floor space or litter surface. Repeat as needed. Ventilate while spraying. Do not treat premises within 7 days of slaughter.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to Seller, and Buyer assumes the risk of any such use.