



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

FEB 10 1994

Barbara Brown  
DREXEL CHEMICAL COMPANY  
P.O. BOX 9306  
MEMPHIS, TN. 38109

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Subject: Label Amendment Submission of 09/08/93 In Response to PR Notice 93-7  
EPA Reg. No. 19713-49  
DREXEL CARBARYL 4L

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted subject to the comments reflected on the enclosed sheet. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

**WHAT THIS ACCEPTANCE MEANS:**

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

**WHAT YOU NEED TO DO NEXT:**

By the next label printing make all the specified changes to your labeling. Send to EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling
- AND
- WITHIN one year from date of this acceptance.



Recycled/Recyclable  
Printed with Soy/Canola Ink on paper that  
contains at least 50% recycled fiber

Page 2

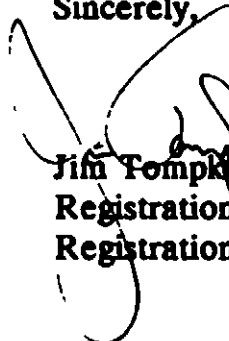
Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)  
Office of Pesticide Programs (7505C)  
U.S. Environmental Protection Agency  
401 M Street, SW  
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)  
Office of Pesticide Programs  
Room 266A, Crystal Mall 2  
1921 Jefferson Davis Highway  
Arlington, VA 22202

Sincerely,



Jim Tompkins, Deputy Chief  
Registration Support Branch  
Registration Division (7505W)

Attachment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division

Barbara Brown  
DREXEL CHEMICAL CO  
BOX 9306  
MEMPHIS TN 38109

Comment for: EPA Reg Nr.19713-49  
DREXEL CARBARYL 4L

The following specific comments pertain to your WPS  
labeling submission concerning the product  
cited above:

You must retain from your original label any statements about entry restrictions that apply to the non-agricultural uses on your product. Create a Non-Agricultural Use Requirements box in the Directions For Use section of your labeling and add the statements: "The requirements in 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." Then add to the box the statements that are in brackets [] on your original label. Please refer to the instructions for creating a Non-Agricultural Use Requirements box starting on page 45 of Supplement Three to PR Notice 93-7 (Main Labeling Guidance).

Delete the crossed-out statements on your proposed label. They are redundant statements or phrases.

Correct the typographical errors circled on your proposed label.

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**DREXEL  
CARBARYL 4L  
Carbaryl Insecticide**

**ACTIVE INGREDIENTS:**

Carbaryl (1-Naphthyl N-methylcarbamate).....43.4%

**INERT INGREDIENTS:**.....56.6%

**TOTAL:**.....100.0%

Product contains 4 pounds carbaryl as active ingredient.

ACCEPTED  
with COMMENTS  
In EPA Letter Dated

FEB 10 1994

**KEEP OUT OF THE REACH OF CHILDREN  
CAUTION**

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.

19713-49

EPA Reg. No. 19713-49  
EPA Est. No. 19713-GA-1

**STATEMENT OF PRACTICAL TREATMENT**

**IF SWALLOWED:** 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.

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

Carbaryl is an N-Methyl Carbamate and is a cholinesterase inhibitor.

**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION:** Harmful if swallowed. Avoid breathing spray mist. Avoid contact with eyes, skin or clothing. Wear regular long-sleeved work clothing. Change to clean clothing daily. Wash hands and face before eating. Wash thoroughly after handling. Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by all workers and persons.

**PERSONAL PROTECTIVE EQUIPMENT**

Applicators and other users should wear: Long-sleeved shirt and long pants. Shoes plus socks. Protective gloves. Goggles or face shield. Do not eat, drink, or use tobacco while using this product. Wash hands thoroughly before eating, drinking, or using tobacco. Do not use this product near food or feed. Do not use this product in or near living quarters. Do not use this product in or near sleeping quarters. Do not use this product in or near children's play areas. Do not use this product in or near swimming pools. Do not use this product in or near water. Do not use this product in or near crops. Do not use this product in or near livestock. Do not use this product in or near poultry. Do not use this product in or near bees. Do not use this product in or near fish. Do not use this product in or near shellfish. Do not use this product in or near birds. Do not use this product in or near mammals. Do not use this product in or near reptiles. Do not use this product in or near amphibians. Do not use this product in or near plants. Do not use this product in or near animals. Do not use this product in or near humans. Do not use this product in or near the environment. Do not use this product in or near the atmosphere. Do not use this product in or near the soil. Do not use this product in or near the water. Do not use this product in or near the land. Do not use this product in or near the air. Do not use this product in or near the earth. Do not use this product in or near the sky. Do not use this product in or near the sun. Do not use this product in or near the moon. Do not use this product in or near the stars. Do not use this product in or near the planets. Do not use this product in or near the galaxies. Do not use this product in or near the universe. Do not use this product in or near anything.

**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.

**BEST AVAILABLE COPY**

## ENVIRONMENTAL HAZARDS

This product is extremely toxic to aquatic and estuarine invertebrates. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark, except under the forest canopy and in use on rice. Discharge from rice fields may kill aquatic and estuarine invertebrates. Do not contaminate water by cleaning of equipment or disposal of wastes.

**BEE CAUTION:** 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 if bees are visiting the treatment area.

## 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 label 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 LABEL BEFORE USE, STRICTLY OBSERVE LABEL DIRECTIONS, CAUTIONS, AND APPLICABLE FEDERAL AND STATE REGULATIONS.**

~~Treated areas may be re-entered immediately after the spray has dried.~~

## PRE-HARVEST 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 feed for dairy and meat animals without causing illegal residues in meat or milk. This product may be applied up to and including the day of grazing of forage crops. Application may be made without removing livestock from area being treated. Subsequent planting of food and feed crops in treated soil must be made with crops on this or other carbaryl labels.

## 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 response. 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 of this Standard apply to any use of this product that are covered by the Worker Protection Standard. Do not apply this product to areas where workers or other persons are either directly or through drift. Only persons who are trained in the proper use of this product may apply this product. Do not enter treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for entry or re-entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with or proximity to the treated area, such as plants, soil, or water is:

Coveralls  
Washable gloves  
Shoes plus socks

## SPRINKLER CHEMIGATION

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation system(s). Do not apply this product through any other type of irrigation system.

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

If you have questions about calibration, you should 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.

Public water system means a system for the provision of the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

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 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, or in cases where there is no water pump, 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.

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.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Maintain sufficient agitation in the pesticide supply tank to keep the pesticide in suspension. Meter the pesticide into the irrigation water continuously for the duration of the water application. Mix pesticide in a sufficient amount of water to maintain a uniform suspension.

Read entire label. Use strictly according to label directions and cautions. Do not use application methods, dosages, concentrations, or frequencies not listed on labeling. Do not apply against target pests or crops not listed on labeling. Do not mix with fertilizers or micronutrients if the resulting spray mixture is incompatible or alkaline.

#### **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, pesticides 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. Start mechanical or hydraulic agitations. Slowly add the required amount of Carbaryl 4L and the remaining volume of water. Include rinse water from container. Dilution of 1 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.** Carbaryl 4L spray must be diluted as stated above, and droplets must dry on the foliage before they become washoff resistant. When atmospheric humidity is low, a drying time of at least one hour is generally adequate. Under high humidity a longer drying time may be required. Washoff resistance cannot be expected if Carbaryl 4L is applied to wet foliage which does not dry adequately prior to rainfall or overhead irrigation. On all crops use sufficient spray volume to obtain thorough coverage. Optimum pest control under certain crops, pest or climatic conditions may require spray gallonage higher than 1:11 dilution. For example in hot, dry weather, or when humidity is low, higher spray gallonage per acre may be required to minimize loss from evaporation and insure thorough coverage. The total spray volume required for effective pest control can be determined by previous experience, pest and crop conditions and local recommendations.

## 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 the flow rate of water.

Use 50 mesh 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, advance instars and adults. Thorough and uniform spray coverage is essential for a effective control.

CARBARYL 4L does not control spider mites. If spider mites are a problem, use a registered miticide. Regional differences have been noted in the susceptibility of certain strains of fall armyworm to CARBARYL 4L. If local experience indicates inadequate control, use an alternative pesticide.

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# **FORAGE, FIELD AND VEGETABLE CROPS**

Apply in sufficient spray volume to obtain thorough coverage. Where maximum wash off resistance is needed, use up to 1:1 (vol/vol) dilution with water. Do not dilute greater than 1:1 where wash off resistance is desired. To prepare small volumes of spray, use 1 tablespoonful (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.

Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
All Forage, Field and Vegetable Crops in this Section	Grasshoppers	1/2 to 1 1/2	See specific Forage, Field or Vegetable Crop	Use 1/2 to 1 qt. for nymphs on small plants or sparse vegetation in wastelands, rangeland, diich banks and borders. Use 1 to 1 1/2 qts. for adult grasshoppers or application to dense vegetation.
Alfalfa Clovers	Blister beetles, Mexican bean beetle Alfalfa caterpillar, Bean leaf beetle, Cucumber beetles, Green cloverworm, Japanese beetle Leafhoppers, Three cornered alfalfa hopper, Thrips, Velvetbean caterpillar Alfalfa Weevil larvae, Armyworm, Clover-head weevil, Cutworms, Corn earworms, Egyptian alfalfa weevil larvae, Essex skipper, European alfalfa beetle, Fall armyworm, Lygus bugs, Stink bugs, Webworms, Yellow-striped armyworm	1/2 to 1 1 1 to 1 1/2	Alfalfa-3 Clovers-0	Observe plant response precautions. 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 to 40 gallons per acre with ground equipment to ensure adequate coverage.

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Asparagus	Asparagus beetle Apache cicada.	1 to 2 2 to 4	1 Post-harvest application only.	Treat ferns or brush growth. Do not treat more than once every 3 days.
Beans (including black-eyed peas, cowpeas, crowder or southern peas, dry beans, green beans, lima beans, navy beans and snap beans)	Blister beetles, Mexican bean beetle Alfalfa caterpillar, Bean leaf beetle, Cucumber beetle, Flea beetles, Green cloverworm, Japanese beetle, Leafhoppers, Three-cornered alfalfa hopper, Thrips, Velvetbean caterpillar, Western bean cutworm Armyworm, Corn earworm, Cutworms, European corn borer, Fall armyworm, Stink bugs, Tarnished plant bugs, Webworm Cowpea curculio Corn earworm, Lima bean pod borer, Lygus bugs, Stink bugs	1/2 to 1  1   1 to 1 1/2  2 2	0 (3-cowpeas only)	Observe plant response precautions.          CALIFORNIA ONLY.
Cabbage, Broccoli, Brussels Sprouts, Cauliflower, Kohlrabi	Flea beetles, Harlequin bug Armyworm, Corn earworm, Fall armyworm, Imported Cabbage worm	1/2 to 1  1 to 2	3	

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Chinese cabbage, Collards, Hanover salad, Horseradish, Kale, Mustard greens, Radishes, Rutabaga, Turnips	Flea beetles, Harlequin bug, Leafhoppers Aster leafhopper Armyworm, Corn earworm, Fall armyworm, Imported cabbage worm, Stink bugs, Tarnished plant bug	1/2 to 1 1 to 1 1/2 1 to 2	3-(Horse-radish, radishes, rutabagas, and turnip roots) 14-(Chinese cabbage, collards, Hanover salad, kale, mustard greens, and turnip tops)	
Carrots, Parsnips, Parsley, Celery	Flea beetles, Leafhoppers Aster leafhopper, Lygus bugs, Spittlebugs Armyworm, Corn earworm, Fall armyworm, Stink bugs, Tarnished plant bug	1/2 to 1 1 to 1 1/2 1 to 2	0-(carrots) 3-(parsnips) 14 (celery and parsley)	Treat on a 5 to 7 day schedule.
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  Western bean cutworm  Cutworms	1 to 2  2  2 to 6 1/2	0  0  0	OBSERVE BEE CAUTION. For insects attacking silks and ears apply at 1 to 6 day intervals starting when first silks appear and continuing until silks begin to dry. For larvae in whorl and foliage feeders, apply as necessary. Optimum timing and good coverage are essential for effective control. For optimum chinch bug control, apply 20 gallons of water per acre by ground and direct spray toward stalk to provide thorough coverage.  Treat when infestation averages 15% and at 90% to 100% tassel emergence. Treatment after 100% silk emergence will reduce effectiveness.  Apply in a 12 inch band, using 6 fluid ounces per 1000 linear feet of row, in at least 15 gallons of water per acre. For broadcast application use 6.5 quarts in at least 20 gallons (ground) or 5 gallons (air) of water per acre.

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Cotton	Cotton fleahopper, Cotton leafworm, Flea beetles, Striped blister beetle, Thrips	1/2 to 1	7	Early season insect control
	Boll weevil, Boll worms, Cotton leafperforator, Fall Armyworm, Leafrollers, Leafhoppers, Tarnished plant bug, Yellow striped armyworm (Cotton cutworm).	1 to 2	7	Treat on a 5 to 7 day schedule for as long as control is necessary. Mid to late season insect control: may be applied after bolls open.
	Lygus bugs	1 to 2	7	For light to moderate population in Western irrigated cotton.
	Pink bollworm	1 1/2 to 2 1/2	7	Aphid populations will be suppressed by repeated applications of this insecticide.
	Stink bugs, salt-marsh caterpillar	2	7	Aphid populations will be suppressed by repeated applications of this insecticide.
Cucumber, Melons, Pumpkin, Squash	Pickleworm, Melonworm, Cucumber beetles, Flea beetles, Leafhoppers, Squash bugs	1/2 to 1 1	0	Observe plant response precautions. Avoid excessive applications.
Dandelion, Endive (Escarole), Lettuce, Salsify	Flea beetles, Harlequin bug, Leafhoppers, Aster leafhopper, Lygus bugs, Spittlebugs, Armyworm, Corn earworm, Fall armyworm, Imported cabbage worm, Stink bugs, Tarnished plant bug	1/2 to 1 1 to 1 1/2 1 to 2	3 - (head lettuce & salsify roots) 14 - (dandelions, endive (escarole), leaf lettuce and salsify tops)	Observe plant response precautions. Treat on a 5 to 7 day schedule after heads begin to form.
Forage grasses Pasture Rangeland	Armyworm, Black grass bugs, Chinch bugs, Essex skipper, Fall armyworm, Range caterpillars, Range crane fly, Striped grass looper, Thrips, White grubs (green June beetle)	1 to 1 1/2 1 1/2 to 2	0	To control thrips in grasses grown for seed use high spray pressure to improve penetration into boot.
Garden beet, Spinach, Swiss chard	Flea beetles, Harlequin bug, Leafhoppers, Aster leafhopper, Armyworm, Corn earworm, Fall armyworm, Stink bugs, Tarnished plant bug	1/2 to 1 1 to 1 1/2 1 to 2	3 - (garden beet roots) 14 - (garden beet tops, spinach, Swiss chard)	Treat on a 5 to 7 day schedule.
Okra	Corn earworm, Stink bugs	1 to 2	0	Treat on a 5 to 7 day schedule.

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Peanuts	Blister beetles, Mexican bean beetle	1/2 to 1	0	Observe plant response precautions
	Alfalfa caterpillar, bean leaf beetle, Cucumber beetles, Green cloverworm, Japanese beetle, Leafhoppers, Red-necked peanutworm, Three cornered alfalfa hopper, Thrips, Velvetbean caterpillar	1		
Peas	Armyworm, Corn earworm, Fall armyworm, Stink bugs, Webworms	2	0	WASHINGTON STATE ONLY
	Colorado potato beetle, Leafhoppers	1		
Potato, Tomato, Eggplant, Pepper	Armyworms	1 to 1 1/2	0	
	Alfalfa caterpillar, Cutworms, Pea leaf weevil, Pea weevil, Yellow-striped armyworm	1 1/2		
	Alfalfa looper	2 1/2	0	
	Colorado potato beetle, Flea beetles, Leafhoppers	1/2 to 1		
Rice (MS Delta & Texas)	European corn borer, Fall armyworm, Lace bugs, Stink bugs, Tarnished plant bug, Tomato fruitworm, Tomato hornworm, Tomato pinworm	1 to 2	14	MISSISSIPPI DELTA AND TEXAS DO NOT APPLY PROPANIL HERBICIDE WITHIN 15 DAYS BEFORE OR AFTER CARBARYL 4L APPLICATION OR PLANT INJURY WILL RESULT. DO NOT USE ON RICE FIELDS IN WHICH CRAYFISH AND/OR CATFISH FARMING IS INCLUDED IN THE CULTURAL PRACTICE.
	Cutworms	2		
(California only)	Armyworm, leafhoppers, Tadpole shrimp	2	14	CALIFORNIA ONLY. For optimum tadpole shrimp control apply to water when pest first appears. DO NOT USE ON RICE FIELD IN WHICH CRAYFISH AND/OR CATFISH FARMING IS INCLUDED IN THE CULTURAL PRACTICE.

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Soybeans	Bean leaf beetle, Cucumber beetles, Green cloverworm, Mexican bean beetle, Velvetbean caterpillar	1/2	0	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 rate.
	Corn earworm	1/2 to 3/4		
	Blister beetles, Grape colaspis, Mexican bean beetle	1/2 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 armyworms, Stink bugs, Webworms	1 to 1 1/2		
Sugar beets	Painted lady (Thistle caterpillar), Salt-marsh caterpillar, Yellow-striped armyworm	2 to 2 1/2	14	
	Armyworm, Beet leaf beetle, Fall armyworm, Flea beetles, Leafhoppers, Webworms	1 to 1 1/2		
Sunflower	Cutworms	1 1/2	60	
	Armyworm, Fall armyworm, Stem weevil, Sunflower beetle	1 1/2 to 2 1 to 2		
Sweet potato	Corn earworm, Cucumber beetle, Flea beetles, Sweet potato hornworm, Tortoise beetles	1 to 2	0	Apply as a foliar spray as needed.
	Yellow-striped armyworm, Sweet potato weevil	2 1 to 2		
				FOLIAR APPLICATION-Full coverage of plants is essential. Use lower rate on young plants and higher rate on mature plants.

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Tobacco	Tobacco flea beetle	2 tbs./gal or 1 qt./50 gal. or 5 gal./100 sq. yards	0	IN PLANT BEDS - To prevent injury, avoid excessive application.
	Green June beetle grubs	1/2 qt./100 gals.		Apply only to areas that larvae have uprooted by sprinkling mixture as a drench treatment with 50 to 100 gallons per 100 sq. yds.
	Budworms, Fall armyworms, Flea beetles, Hornworms, Japanese beetle, June beetle, Suckfly	1 to 2		IN FIELDS - Use lower rate on young plants (up to knee height). Use at least 10 gallons of prepared spray per acre. Begin treatments when worms are small. If late season applications are necessary, allow three days before priming or cutting.
Wheat	Cereal leaf beetle Armyworm, Fall armyworm	1 1 to 1 1/2	21 (grain)	Application is effective against eggs, larvae and adults.

### TREES AND ORNAMENTALS

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 of 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 1 tablespoon (1/2 fluid ounce) of CARBARYL 4L per gallon of water, where rates of 1 quart are indicated. For aerial applications to forest trees (including shade trees, shelter belts, plantations, parks and recreational areas) and commercially grown ornamentals, woody plants and shrubs, apply the specified dosage per acre in sufficient spray volume to provide thorough coverage. Avoid direct application to lakes, streams and ponds.

Crops	Insect	Quarts of Carbaryl 4L	Specific Directions
GROUND AND AERIAL APPLICATION Trees (including shade trees, shelter belts, plantations, parks and recreational areas). Ornamentals (including roses, flowers and other herbaceous plants). Woody Plants and Shrubs	Ants, Apple aphid, Armyworm, Azalea leafminer, Bagworms, Birch leafminer, Blister beetle, Boxelder bug, Boxwood leafminer, Browntail moth, Cankerworms, Catapa sphinx, Chiggers, Cooley spruce gall aphid, Cutworms, Cypress tip moth, Douglas fir tussock moth, Eastern spruce gall aphid, Elm leaf aphid, Elm leaf beetle, Elm spanworm, Eriophyid mites, European pine shoot moth, Fall armyworm, Flea beetles, Fuller rose beetle, Gall midges, Gall wasps, Green striped mapleworm, Grasshoppers, Gypsy moth, Hackberry niplegall maker, Holly bud moth, Holly leafminer, Jackpine budworm, Japanese beetle, Jeffery pine needleminer, June beetles, Lace bugs, Leafhoppers, Leafrollers, Locust borer, Mealy bugs, Mimosa webworm, Nantucket pine tip moth, Oak leafminers, Oak leaf skeletonizer, Oakworm complex, Oleander caterpillar, Olive ash borer, Orange striped oakworm, Orange tortrix, Periodical cicada, 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, Sow bugs, Spiny elm caterpillar, Springtails, Spruce budworm, Spruce needleminer, Subtropical pine tip moth, Tent caterpillars, Thorn bug, Thrips (exposed), Ticks, Walnut caterpillar, Webworms, Western hemlock looper, Western Spruce budworm, Willow leaf beetles, Yellow poplar weevil	1	Observe plant response precautions. Apply dilute spray 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.
	Ips engraver beetles, Mountain pine beetle, Round-headed pine beetle, Western pine beetle  Elm bark beetle	20	Effective as a preventative treatment only. Repeat annually as required to prevent beetle attacks. Apply 1 gallon of spray per 50 square feet of bark in late May to early July, or prior to beetle attack. Treat tree trunks from ground level up, until trunk diameter is less than 5 inches. Apply approximately 20-30 gallons of spray mixture for each 50 ft. of elm tree for thorough coverage of all bark surfaces on trunks, limbs and twigs.

### LAWNS AND RECREATIONAL AREAS

Crop	Insect	Specific Directions
Lawns and Recreational Areas (including turf, golf courses, and parks)	Ants. Armyworm. Bluegrass billbug. Centipedes. Chiggers. Cutworms. Earwigs. Essex skipper. European chafer. Fall armyworm. Fiery skipper. Fleas. Grasshoppers. June beetles. Leafhoppers. Lucerne moth. Millipedes. Mosquitoes. Sod webworm. (Lawnmoths). Sowbugs. Springtails. Ticks. Yellowstriped armyworm Chinch bugs. White grubs	Use 1 quart of CARBARYL 4L in 150 to 200 gallons of spray mixture per 5000 square feet of established lawn, recreational area, roadway or path border. For best results, mow lawn and apply after watering or rain to ensure good penetration of turf. Garden hose or pressure applicators may be used. Repeat 2 to 3 weeks later if necessary.  Use 1 1/2 quarts of CARBARYL 4L in 150 to 200 gallons of spray per 5000 square feet.

### MOSQUITO CONTROL

For dilute-spray ground applications to trees (including shade trees, shelter belts, 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 1 tablespoon (1/2 fluid ounce) of CARBARYL 4L per gallon of water, where rates of 1 quart are indicated. For aerial applications to forest trees (including shade trees, shelter belts, plantations, parks and recreational areas) and commercially grown ornamentals, woody plants and shrubs, apply the specified dosage per acre in sufficient spray volume to provide thorough coverage. Avoid direct application to lakes, streams and ponds.

Crop	Quarts of Carbaryl 4L	Specific Directions
Pastures, Rangelands, Yards, Parks, Recreational Areas, Logging Camps, Military Posts & Adjacent Forested Lands or Wastelands	1/4 to 1 (1/2 to 1 tablespoonful per gallon)  25	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 morning or late evening. Repeat at 7 to 10 day intervals. Use 1/4 to 1/2 quart per 100 gallons in mistblowers. 1/2 to 1 quart per acre in aerial sprays and 1 quart per acre in low pressure ground sprayers.  For residual control in subtropical regions apply 4 gallons of prepared spray per 2000 sq. ft. of surface area. Repeat in 3 to 6 months or when necessary.

### PEST CONTROL AROUND BUILDINGS

Insect	Amount of Carbaryl 4L	Specific Directions
Ants, Cockroaches	20 (20 tablespoonfuls/gal.)	For external use around buildings only. Do not treat animals. Apply as a coarse wet spray or with a paint brush to outdoor sleeping quarters of pets, outside perimeter of dwellings and other areas where insects tend to congregate.
Brown dog tick, Earwigs, Fleas, Millipedes, Silverfish, Spiders	10 (10 tablespoonfuls/gal.)	Do not use where edible products are exposed, being prepared, processed, or served. Avoid application to surfaces where visible spray residues are objectionable.

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### TREE FRUIT AND NUT CROPS

For dilute spray apply the specified dosage of 100 gallons of water. For concentrated 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.

Crops	Quarts of Carbaryl 4L/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 favor excessive fruit thinning with CARBARYL 4L, exercise caution to avoid possible yield reduction.
Apples only	1/4 to 1/2	1	For easily thinned varieties including Cortland, Grimes, Jonathan, McIntosh, Orleans, Rome Beauty, Puritan, Red Delicious, Winesap, Yellow Newton.
	1/2 to 1	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.

Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Almond	Peach twig borer, San Jose Scale, Fruittree leafroller	1	28	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	1	28	Time early and mid season applications to correspond to moth flight peaks. Make a late season application at initiation of hull split or up to 10% hull split. Do not apply more than 5 quarts per acre.

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Apples, Pears	Apple aphid, Apple rust mite, Apple sucker, Bagworms, California pearslug (pear sawfly), Codling moth, Eyespotted bud moth, Green fruitworm, Lecanium scales, Lesser appleworm, Lygus bugs, Orange tortrix, Oystershell scale, Pear leaf blister mite, Pear Psylla, Pear rust mite, San Jose scale, Tentiform leafminers, Woolly apple aphid.	3/4 to 1	1	WEST OF THE ROCKY MOUNTAINS To avoid undesired apple thinning, delay use until at least 30 days after full bloom. For psylla control apply when eggs hatch or young nymphs are present.
	Apple mealybug, Apple aphid, Codling moth, White apple leafhopper	1/2	1	EAST OF THE ROCKY MOUNTAINS To avoid undesired apple thinning, delay use until at least 30 days after full bloom.
	Apple maggot, Apple rust mite, Bagworms, Eastern tent caterpillar, European apple sawfly, Eyespotted bud moth, Forbes scale, Fruitree leafroller, Green fruitworm, Japanese beetle, Lecanium scales, Lesser appleworm, Oystershell scale, Pear psylla, Pear leaf blister mite, Pear rust mite, Periodical cicada, Plum curculio, Red-banded leafroller, Rosy apple aphid, San Jose scale, Tarnished plant bug, Tentiform leafminers, Woolly apple aphid, Yellowheaded fireworm.	1	1	For optimum scale control, apply when crawlers are present.
Chestnuts	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 Fruits (such as grapefruit, lemons, limes, oranges, tangelos, tangerines, citrus citron, kumquats and hybrids)	Avocado leafroller, California orangedog, Citrus cutworm, Citrus root weevil, Fruitree leafroller, Orange tortrix, Western tussock moth, West Indian sugarcane borer (adult)	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	3/4 to 1		
Filbert	Filbert aphid, Filbert leafroller, Filbertworm	1	0	Apply when leafroller eggs are hatching. Repeat on first appearance of adult filbert moths and again 3 to 4 weeks later.

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Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Olives	Olive scale	3/4 to 1	0	For optimum scale control, add 1 1/2 gallons of summer oil per gallon and apply 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 beetles, European earwig, Fruittree leafroller, Japanese beetle, June beetles, 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 leafroller	1	1-(peaches) 3-(apricots and nectarines)	Do not apply more than 6 quarts of CARBARYL 4L per acre per application to apricots. For optimum scale control apply when crawlers are present. Spray limbs and trunk thoroughly, weekly during moth flight.
Pecans	Black margined aphid, Fall webworm, Hickory shuckworm, Lesser webworm, Pecan leaf phylloxera, Pecan nut casebearer, Pecan spittlebug, Pecan weevil, Twig girdler, Walnut caterpillar	1 to 2 1/2	0	Do not apply more than 7.2 quarts of CARBARYL 4L per acre per application.
Pistachios	Naval orangeworm	1/2 to 2	14	Apply dilute volumes of 150 to 300 gallons of mixed spray per acre for full coverage at onset of hull split.
Plums, Prunes, Cherries	Black cherry aphid, Brown soft scale, Cherry fruitworm, Cherry maggot, European earwig, Eyespotted bud moth, Forbes scale, Fruittree leafroller, Green fruitworm, Japanese beetle, Lecanium scale, Lesser peachtree borer, Mealy plum aphid, Oyster-shell scale, Peach twig borer, Plum curculio, Prune leafhopper, Red-banded leafroller, Rose chafer, San Jose scale, Variegated leafroller, Codling moth, eastern tent caterpillar, Orange tortrix, Tussock moth	1          3/4	1          1	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 peachtree borer control, spray limbs and tree trunks thoroughly, weekly during moth flight.
Walnut	Calico scale, European fruit lecanium, Filbertworm, Fruittree leafroller, Frosted scale, Codling moth	1/2  1/2	0  0	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 1/2 to 3/4 inch. Repeat during middle or late June as needed. Spray tree trunks to point of run-off.
	European earwig	1 1/2 to 2	0	

### 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.

Crops	Insect	Quarts of Carbaryl 4L/Acre	Pre-Harvest Interval (Days)	Specific Directions
Blackberries, Raspberries, Dewberries (including boysenberries and loganberries)	European raspberry aphid, Japanese beetle, Leafhoppers, Leafrollers, Rose chafer, Snowy tree cricket	1 to 2	7	CALIFORNIA ONLY
	Omnivorous leafroller, Raspberry sawfly	2	7	
Blueberries	Blueberry maggot, Cherry fruitworm, Cranberry fruitworm, European fruit lecanium, Japanese beetle	3	0	Apply 3 weeks before harvest and repeat as necessary.
Cranberries	Cutworms, Cranberry fireworms, Cranberry fruitworms, Japanese beetle, Leafhoppers, Rose chafer	1 1/2 to 3	1	CAUTION: May kill shrimp and crabs. Do not use in areas where these are important resources. Apply in late bloom and as needed at 7 to 10 day intervals.
Grapes	European fruit lecanium, Grape leafroller, Grape leafhopper, Western grapeleaf skeletonizer, Western yellow-striped armyworm	1 to 2	0	Apply before first brood leafroller larvae emerge from rolls.
	Cutworms, Eight-spotted forester, Grape berry moth, Japanese beetle, June beetles, Orange tortrix, Omnivorous leafroller, Redbanded leafroller, Saltmarsh caterpillar	2	0	
Strawberries	Flea beetles, Meadow spittlebug, Omnivorous leafhopper (Strawberry fruitworm), Strawberry leafroller, Strawberry weevil	1 to 2	1	CARBARYL 4L may injure Early Dawn and Sunrise varieties on the Delmarva Peninsula.

### POULTRY ROOSTS AND BUILDINGS ONLY

Poultry Quarters	Quarts of Carbaryl 4L	Specific Directions
Bed Bugs, Chicken mite, Fleas, 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. Ventilate while spraying. Do not treat premises within 7 days of slaughter.
Fowl tick	16	See Above
Lesser mealworms	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.

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**STORAGE AND DISPOSAL**

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

**STORAGE INSTRUCTIONS**

Storage should be under lock and key and secure from access by unauthorized persons and children. Storage should be in a cool dry area away from any heat or ignition source. Avoid storage at high temperatures. Do not stack over 2 pallets high. Move containers by handles or cases. Do not move containers from one area to another unless they are securely sealed. Keep container tightly sealed when not in use. Keep away from any puncture source. Avoid storage near water supplies, food, feed and fertilizer to avoid contamination. Avoid contamination with acids and alkalis. Store in original containers only. If the contents are leaking or material is spilled, follow these steps:

1. Contain spill, absorb with a material such as sawdust, clay granules, or dirt.
2. Collect and place in suitable containers for disposal.
3. Wash area with water and soap to remove remaining pesticide.
4. Follow washing with clean water rinse.
5. Place a leaking container in a plastic tub and transfer the contents as soon as possible to an empty original container.
6. Do not allow run off to enter sewer or contaminate water supplies.
7. Dispose of wastes as indicated below:

**PESTICIDE DISPOSAL**

Wastes resulting from the use of this product may be disposed of on 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 incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**WARRANTY - CONDITION OF SALE**

OUR RECOMMENDATIONS FOR USE of this product are based upon tests believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith. In no case shall Drexel or the seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by Drexel Chemical Company and is accepted as such by the Buyer.

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