7/21/2014



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

> OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

JUL 2 1 2014

Melinda Bowman FMC Corporation 1735 Market Street Philadelphia, PA 19103

Dear Ms. Bowman:

SUBJECT: Label Amendment Echelon 4SC Herbicide EPA Registration No. 279-3323 Your Resubmission Dated July 10, 2014 Decision #480561

The label amendment referred to above, submitted in accordance with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable. A stamped copy is enclosed for your records. Please submit one (1) copy of your final printed labeling before you release the product for shipment. This amended labeling supersedes all previously accepted ones.

Sincerely yours,

Kathryn V. Montague Product Manager (23) Herbicide Branch Registration Division (7505P)

Enclosure

ECHELON[®] *Herbicide*

4SC

ACCEPTED

JUL 2 1 2014

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,279-3323

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For Preemergence and early postemergence Control of Crabgrass, selected annual grasses, sedges and annual broadleaf weeds in Turf and Ornamental Sites - Residential and Institutional Lawns and Landscapes, Athletic Fields, Commercial Sod Farms, Golf Course Fairways and Roughs, Roadsides, Utility right-of-ways, Railways, Industrial areas, and Container and Field Grown Ornamentals

EPA Reg. No. 279-3323

EPA Est. No.

Active Ingredient:

By Wt.

Sulfentrazone:N-[2,4-dichloro-5-[4-(difluoromethy	
5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]ph	enyl]
methanesulfonamide	13.6%
Prodiamine: [N3,N3=Di=n=propyl=2,4-dinitro=6-	
(trifluoromethyl)-m-phenylenediamine	27.3%
Other Ingredients:	í. <u>59.1%</u>
-	100.0%

Echelon 4SC contains 1.33 lb sulfentrazone and 2.67 lb prodiamine per gallon U. S. Patent No. 4,818,275

KEEP OUT OF REACH OF CHILDREN CAUTION

See additional precautionary information contained inside label booklet.

FMC Corporation Agricultural Products Group 1735 Market Street Philadelphia PA 19103

FI	RST AID
IF INHALED	Move person to fresh air.
	 If person is not breathing, call 91 or an ambulance, then give artificia respiration, preferably by mouth-to mouth, if possible.
	 Call a poison control center or doctor for further treatment advice.
IF ON SKIN OR CLOTHING	Take off contaminated clothing.
	 Rinse skin immediately with plent of water for 15-20 minutes.
	 Call a poison control center of doctor for treatment advice.
IF IN EYES	 Hold eye open and rinse slowly an gently with water for 15-20 minutes
	 Remove contact lenses, if present after the first 5 minutes, the continue rinsing eye.
	 Call a poison control center o doctor for treatment advice.
IF SWALLOWED	 Cali a poison control center o doctor immediately for treatmen advice.
	 Do not give any liquid to the person
	Do not induce vomiting unless tole to do so by the poison contro center or doctor.
<u>.</u>	 Do not give anything by mouth to an unconscious person.
HOTU	NE NUMBER

doctor, or going for treatment. You may also contact 1-800-331-3148 for emergency medical treatment information. For Information Regarding the Use of this Product Call 1-800-321-1FMC(1362)

PRECAUTIONARY STATEMENTS Hazards to Humans and Domestic Animals CAUTION

Causes moderate eye irritation. Harmful if inhaled, swallowed, or absorbed through skin. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes or clothing. Prolonged or frequently repeated skin contact while mixing or handling may cause allergic reactions in certain individuals.

Personal Protective Equipment (PPE)

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. 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 remove clothing immediately if product gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

This product is toxic to marine/estuarine invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to terrestrial and aquatic plants in neighboring areas. Do not contaminate water when disposing of equipment wash waters or rinsate. <u>Groundwater advisory</u>: Sulfentrazone is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. **Do not use on coarse soils classified as sand which have less** than 1% organic matter.

<u>Surface water advisory:</u> Sulfentrazone can contaminate surface water through spray drift. Under some conditions, sulfentrazone may also have a high potential for runoff into surface water (primarily via dissolution in runoff water), for several to many months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlying extremely shallow groundwater, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-lying tile drainage systems that drain to surface waters.

DIRECTIONS FOR USE

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

Do not apply this product through any type of irrigation system. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the 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 statements on this label about personal protective equipment (PPE) and restricted-entry interval. These requirements 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 over long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material, and shoes plus socks.

Non-Agricultural Use Requirements

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.

Re-entry. Statement: Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment area until spray has dried.

Shake Well Before Using

STORAGE AND DISPOSAL

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

Pesticide Storage: Store product in original container only, away from other pesticides, fertilizer, food or feed. Store in a cool, dry place and avoid excess heat.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: (800) 331-3148.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal: If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

Container Handling:

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: (For containers greater than 5 gallons) Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. (For containers 5 gallons or less) Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Triple rinse (or equivalent). Then offer for recycling if available, 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.

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

PRODUCT INFORMATION

Echelon 4SC Herbicide is a selective pre-emergence and early postemergence herbicide for control of sedges, crabgrass, annual grass and broadleaf weeds in turf sites including residential and institutional lawns, athletic fields, commercial sod farms, golf course fairways and roughs, roadsides, utility right-of-ways, railways and industrial areas and ornamental sites, including landscapes and container and field grown ornamentals.

Echelon 4SC Herbicide is a flowable formulation (suspension concentrate) containing 4 lb of active ingredient per gallon. The mode of action of Echelon 4SC herbicide involves uptake by both weed roots and shoots of existing weeds and prevention of growth by newly emerged weed seedlings.

MIXING AND APPLICATION INSTRUCTIONS General Handling Instructions

This product may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly contained mixing/loading areas.

Operations that involve mixing, loading, rinsing or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well, are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product

spills or equipment leaks, container or equipment rinse or wash water. and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Product must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

Spray Tank Preparation

It is important that spray equipment is clean and free of existing pesticide deposits before using this product. Follow the spray tank clean out procedures specified on the label of product previously applied before adding Echelon 4SC herbicide to the tank.

Echelon 4SC herbicide is a suspension concentrate intended for dilution with water. In certain applications, liquid fertilizer may replace water as diluent.

Mixing With Water

For best results, fill spray tank with one fourth of the volume of clean water needed for the area to be treated. Start the agitation system and add Echelon 4SC herbicide to the tank. Make sure Echelon 4SC herbicide is thoroughly mixed before application or before adding another product to the spray tank.

Mixing With Liquid Fertilizers

The addition of a sprayable nitrogen fertilizer with a nitrogen percentage above 20% may increase herbicidal activity on certain weeds and decrease turf tolerance on desirable turfgrass cultivars. Utilize local recommendations for sources and rates of fertilizer and refer to mixing directions on the fertilizer labels (e.g. UAN or urea solutions). Determine the compatibility of this product with the desired fluid fertilizer by mixing small proportional quantities in advance (See the Tank Mixtures Compatibility section below).

Tank Mixtures Compatibility

Echelon 4SC herbicide is believed to be compatible with most herbicides, fungicides, insecticides, growth regulators, liquid fertilizers and spray adjuvants commonly used in turf and ornamental plant management. However, when preparing a new tank mix conduct an appropriate compatibility test by mixing proportional amounts of all spray ingredients in a test vessel (jar) prior to tank mixing with other products. Shake the mixture vigorously and allow it to stand for five to ten minutes. Rapid precipitation of the ingredients and failure to resuspend when shaken indicates that the mixture is incompatible and should not be applied. Provided the jar test indicates the mixture to be compatible, prepare the tank mixture as follows: Fill the tank one fourth full with water. With the agitator operating, add the recommended amounts of ingredients using the following order: dry granules first and liquid suspensions (flowable) second. As the agitation continues and the tank is filled with water add EC products third followed by the addition of water soluble products.

Read and observe mixing instructions of all tank mix partners. Also read each product's label for Directions for Use, Precautionary Statements and Restrictions and Limitations. The most restrictive labeling applies in all tank mixtures. No label dosage rate may be exceeded. Tank mixture recommendations are for use only in states

where the companion products and application site are registered. In addition, certain states or geographical regions may have established dosage rate limitations. Consult your state Pesticide Control Agency for additional information regarding the maximum use rates.

Use Echelon 4SC herbicide spray mixture immediately after mixing. Do not allow spray solutions to stand or dry in the tank.

Ground Equipment

<u>Power sprayers</u>: Uniform and accurate spray coverage requires proper calibration and operation of spray equipment. The use of marker dyes or foams can improve application accuracy. Boom sprayers equipped with appropriate flat fan nozzles, tips and screens are ideal for broadcast applications. Power sprayers fitted with spray wand/gun may also be used for broadcast application after careful calibration by the applicator. Power sprayers fitted with spray wand/gun are suitable for spot treatments. It is important to avoid over application of this product due to excessive overlapping or spot treatment.

<u>Hand operated spravers</u>: Backpack and compression sprayers are appropriate for small turfgrass areas and spot treatments. Wands fitted with a flat fan nozzle tip should be held stationary at the proper height during application. A side-to-side or swinging arm motion may result in uneven coverage or excessive application.

Apply this product in a sufficient volume of carrier solution to provide a uniform spray distribution. Spray volumes of 20 - 175 gallons per acre (0.5 to 4.0 gal/1,000 sq ft) with spray pressures adjusted to 20 - 40 psi are appropriate. Apply the higher spray volumes for dense weed populations.

Sprayer Equipment Clean-Out

After spraying Echelon 4SC herbicide and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned using the following procedure:

1. Drain sprayer tank, hoses, and spray boom and thoroughly rinse the inside of the sprayer tank with clean water to remove sediment and residues. In addition, thoroughly flush sprayer hoses, boom, and nozzles with clean water.

2. Fill the tank 1/2 full with clean water, and add appropriate detergent or ammonia (follow manufacturer's directions for use). Fill the tank to capacity and operate the sprayer for 15 minutes to flush hoses, boom, and nozzles.

3. Drain the sprayer system. Rinse the tank with clean water and flush through the hoses, boom, and nozzles. Remove and clean spray tips and screens separately.

4. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State and local regulations and guidelines.

Do not drain or flush equipment on or near desirable trees or plants. Do not contaminate any body of water including irrigation water that may be used on other plants.

DIRECTIONS FOR USE IN TURFGRASS Established Turf

This product may be used on seeded, sodded or sprigged turfgrasses that are well established. First application of this product can be made following the second mowing providing the grass has developed into a uniform stand with a good root system. Turf injury may result from application of this product on turf that is not well established or has been weakened by stresses such as unfavorable weather conditions, disease, chemical or mechanical influences.

When applied as directed under the conditions described, the following established grasses are tolerant to Echelon 4SC herbicide at the recommended use rates in a range from 0.250 to 1.125 lb ai/acre (8 to 36 fl oz/acre or 0.184 to 0.8264 fl oz/1,000 sq ft). Do not exceed 1.125 lb ai/acre (36 fl oz/acre) per calendar year.

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Table1. Tolerant grasses

	Use Rates	_	
Grass Type	Do not exce		use rates per turf
	Fluid ounces	ngle applicatio	n Fluid ounces of
Cool Season Grasses	of Echelon 4SC Herbicide per acre	lb ai per acre	Echelon 4SC Herbicide per 1000 sq
Bentgrass, creeping1	8-12 fl oz	0.25 ³ lb ai	0.184-0.275
Fescue, fine2 (Festuca	1	(0.083 lb	floz
rubra)	l	sulfentrazone)	
Ryegrass, perennial		(0.167 lb	
(Lolium perenne)		prodiamine)	
		to	
		0.375 ³ lb ai	
		(0.125 lb	
	l	sulfentrazone)	
		(0.25 lb	
		prodiamine)	
Bluegrass, Kentucky (Poa	18-24 fl oz	0.57 ³ lb ai	0.413-0.551
pratensis)		(0.19 lb ·	fl oz
Fescue, tall ² (Festuca		sulfentrazone)	
arundinacea)	Į	(0.38 lb	
-		prodiamine)	
		to	
	1	0.75 ³ lb ai	
		(0.25 lb	
		sulfentrazone)	
	1	(0.5 lb	
		prodiamine)	
Sequential Application for Mixed Cool Season Turf/Cool Season Blends			
consisting of: Fescue, fine ² (Festuca	12 fl oz	0.375 ³ lb ai	0.275 fl oz
rubra), Ryegrass, perennial	Followed by 6 to	(0.125 lb	Followed by 0.184 -
(Lolium perenne),	12 fl oz	sulfentrazone)	0.275 fl oz
Bluegrass, Kentucky (Poa	3060 days	(0.25 lb	30-60 days later
pratensis)	later .	prodiamine)	
Fescue, tall ² (Festuca		F -11 · · ·	
arundinacea)	1	Followed by	
		0.25 ³ lb ai	1
]	(0.083 lb	
	1	sulfentrazone) (0.167 lb	
		prodiamine)	,
		to	
	}	0.375 ³ lb ai (0.125 lb	
		sulfentrazone)	
		(0.25 lb	
		prodiamine)	
Warm Season Grasses			
Bahiagrass (Paspalum	18-24 fl oz	0.57 ³ lb ai	0.413-0.551
notatum)		(0.19 lb	fl oz
Buffalograss (Buchloe		sulfentrazone)	
dactyloides)	1	(0.38 lb	
Carpetgrass (Axonopus		prodiamine)	
affinis) Continedegroop	ļ	t-	
Centipedegrass	l	to	
(Eremochioa ophuiroides)		0.75 ³ lb ai	
Kikuyugrass (Pennisetum		(0.25 lb	
clandestinum)		(U.25 ID sulfentrazone)	
Seachore Paceatum	1		
Seashore Paspalum (Paspalum varinatum)	1		
(Paspalum vaginatum)		(0.5 lb prodiamine)	
		prodiamine)	
(Paspalum vaginatum) Zoysiagrass (Zoysia	24-36 fl oz		-0.551-0.826 fl oz

(

(

sulfentrazone)	
(0.5 lb	
prodiamine)	
to	
1.125 ³ lb ai	
(0.374 lb	
sulfentrazone)	
(0.751 lb	
prodiamine)	

If bentgrass is mowed lower than 0.5 inches do not apply Echelon 4SC herbicide.

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Use of this product on certain varieties of Chewing Fine Fescue or Tall Fescue cultivars may result in undesirable injury.

- result in undesirable injury.
 Echelon 4SC herbicide may be applied more than once per year if needed as long as total amount applied does not exceed the maximum application rate per turf type or 1.125 lb ai/acre (36 fl oz/acre), whichever is lower.
- Use of this product on certain cultivars of Chewings Fescue, Fine Fescue or Tall Fescue cultivars may result in undesirable injury.
- Echelon 4SC herbicide application may cause temporary discoloration to exposed leaf surfaces on certain cultivars of zoysiagrass. Treated turfgrass will recover with new growth. Discolored leaf tissue will be removed with mowing. To reduce potential for discoloration, do not apply Echelon 4SC herbicide on turfgrass that is weakened by weather, mechanical, chemical, disease or other related stress. Maintain proper cultural practices such as adequate moisture and fertility levels to promote healthy turf growth.
- Echelon 4SC herbicide applications made to fully dormant zoysiagrass does not appear to affect spring transition. Zoysiagrass tends to be most sensitive to Echelon 4SC herbicide applications during spring and fall transition. Echelon 4SC herbicide may cause temporary discoloration to exposed leaf surfaces of certain zoysiagrass cultivars. The temporary discoloration that may occur does not adversely affect long-term growth. Affected turfgrass will recover and discolored leaf tissue will be removed with mowing.
- Do not add a surfactant or liquid fertilizers containing greater than 20% nitrogen as this may exacerbate discoloration.
- Allow for 7 days separation between Echelon 4SC herbicide applications and plant growth regulator applications. Applications made within 7 days of plant growth regulators may lengthen discoloration.
- Echelon 4SC herbicide has demonstrated tolerance on both cool and warm season turfgrasses. However, not all varieties and or cultivars have been evaluated. Turfgrass managers desiring to treat newly released varieties should first apply Echelon 4SC herbicide to a small area prior to treatment of larger areas.

Table 1A. Applications for St Augustine Grass - Application of Echelon 4SC herbicide to St. Augustine Grass may cause temporary discoloration to exposed leaf surfaces of St. Augustine grass. Treated turfgrass will recover with new growth and discolored leaf tissue will be removed with mowing.

Do not apply Echelon 4SC herbicide to St Augustine grass if temporary discoloration cannot be accepted.

Warm Season Grass	Fluid ounces per acre	lb ai per acre	Fluid ounces per 1000 sq ft
St. Augustine	18 fl oz Followed by 18 fl oz 45 – 60 days later	0.57 lb ai Followed by 0.57 lb ai 45-60 days later	0.413 fl oz Followed by 0.413 fl oz 45-60 days later

Table 2. Weeds Controlled with Pre emergenceApplication

Common Name	Scientific Name

	•
Barnyardgrass	(Echinochloa crus-galli)
Bluegrass annual	(Poa annua)
Carpetweed	(Mollugo verticillata)
Carolina Geranium	Geranium carolinianum
Chickweed, common ²	(Stellaria media)
Chickweed, mousear (from seed)	(Cerastium vulgatum)
Crabgrass (large, Smooth) 3	(Digitaria spp.)
Crowfootgrass	(Dactyloctenium aegyptium.)
Cupgrass, Woolly	(Eriochloa villosa)
Foxtails, Annual	(Setaria spp)
Goosegrass 4	(Eleusine indica)
Hairy Bittercress	Cardamine hirsute
Henbit ²	(Lamium amplexicaule)
Itchgrass	(Rottboellia exaltata)
Knotweed, prostrate	(Polygonum aviculare)
Kochia	(Kochia scoparia)
Kyllinga, green	(Kyllinga brevifolia)
Kyllinga, false	(Kyllinga gracillima)
Lambsquarters, common	(Chenopodium album) ·
Lovegrass	(Eragrostis spp.)
Nutsedge, yellow	(Cyperus esculentus)
Pancium (Texas,Fall)	(Panicum spp.)
Pigweed, Redroot	(Amaranthus retroflexus)
Purslane, Common	(Portulaca oleracea)
Pusley, Florida	(Richardia scabra L.)
Sedge, globe	(Cyperus globulosus)
Sedge, cylindrical	(Cyperus retrorsus)
Sedge, Surinam	(Cyperus surinamensis)
Sedge, Texas	(Cyperus polystachyos)
Shephardspurse ²	(Capsella bursa-pastoris)
Signalgrass, broadleaf	(Brachiaria playphylla)
Speedwell	(Veronica spp.)
Sprangletop	(Leptochola spp.)
Spurge, prostrate	(Euphorbia humistrata)
Witchgrass	(Panicum capillare L.)
Woodsorrel, yellow (from Seed)	(Oxalis stricta)

Poa annua is a winter annual. Applications of Echelon 4SC herbicide should be made in August or September to established, non-overseeded turf before Poa Annua germinates. Consult local Cooperative Extension Service for more specific applications timings for your local area since August and September are approximate timings.

2. Apply Echelon 4SC herbicide in late summer, fall or winter before weed germinates for control.

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3. <u>Crabgrass control in cool season grasses from fall application:</u> Areas where the ground is subject to winter freezes, Echelon 4SC herbicide may be applied in the fall at rates listed in Table 1 (8-24 fluid ounces per acre) for cool season grasses when soil temperatures are below 50°F, but prior to the ground freezing. This will provide control of crabgrass the following spring.

In areas of extended growing season and heavy pressure, weed control will be enhanced by a second application of Echelon 4SC herbicide 60-90 days after initial application. However, do not exceed the maximum single application rate specified for the turf species in Table 1 and do not exceed the maximum yearly rate of 1.125 lb ai/acre (36 fl oz/acre).

Postemergence Control of Annual, Biennial & Perennial Broadleaf Weeds, Grasses and Sedges

Echelon 4SC herbicide will control or suppress the weeds listed in Table 3 when applied shortly after weeds have emerged. Do not exceed the application rate specified for the turf species in Table 1. Do not apply adjuvants or surfactants with post applications of Echelon 4SC herbicide unless tested on small areas prior to broadcast applications.

Common Name	Scientific Name	Controlled	Suppressed
Bittercress	(Cardamine spp.)	,	. X
Black medic	(Medicago lupulina)		X
Buttercups	(Ranunculus spp.)		X
Carolina geranium	(Geranium carolinianum)	1	
Carpetweed	(Mollugo verticillata)		X
Chickweed, common	(Stellaria media)	1	
Chickweed, mousear	(Cerastium vulgatum)		X
Cinquefoil	(Potentilla spp.)		X
Clover	(Trifolium spp.)		X

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Table 3. Weeds Controlled or Suppressed When Application is Made Postemergence to Weeds

Crabgrass (Large and Smooth)	(Digitaria spp.)	2	
Cudweed	(Gnaphalium spp.)	••	X
Dandelion	(Taraxacum officinale)		X
Dock, Curly	(Rumex crispus)		- <u>-</u> x
Evening primrose	(Oenothera biennis)		X
Fiddleneck	(Amsinckia spp.)		<u>x</u>
Filaree	(Erodium spp.)		X
Goldenrod	(Solidago spp.)	1	· · ·
Goosegrass	(Eleusine indica)	2	
Ground ivy	(Glechema hederacea)	1	
Henbit	(Lamium amplexicaule)	· · · · · · · · · · · · · · · · · · ·	X
Knotweed, prostrate	(Polygonum aviculare)		X
Kochia	(Kochia scoparia)	1	<u>^</u>
Lambsquarters.	(Chenopodium album)	· · · · · · · · · · · · · · · · · · ·	
common			х
Lawn burweed	(Soliva pterosperma)		X
Lespedeza, common	(Lespedeza striata)		X
Mallow, common	(Malva neglecta)		X
Nutsedge, Yellow	(Cyperus esculentus)	C	
Parsley piert	(Alchemilla arvensis)	1	
Pigweed, Redroot	(Amaranthus		
	retroflexus)	1	
Pigweed, Tumble	(Amaranthus albus)	1	
Pineapple weed	(Matricaria		×
	matricarioides)		х
Plantain, buckhorn	(Plantago lanceolata)	1	
Puncture weed	(Tribulus terrestris)		X
Purslane, common	· (Portulaca oleracea)		X
Pusley, Florida	(Richardia scabra)	1	
Redweed	(Melochia corchorifolia)		X
Rocket, London	(Sisymbrium irio)		Х
Smartweed,	(Polygonum	1	
Pennsylvania	pensylvanicum)	1	
Sorrel, Red	(Rumex acetosella)		<u>X</u>
Speedwell	(Veronica spp.)	1	
Spurge, (annuals)	 (Euphorbia spp.) 	1	
Spurge, prostrate	(Euphorbia humistrata)	1	
Spurge, spotted	(Euphorbia maculata)	1	
Star of Bethlehem	(Omithogalum umbellatum)	1	
Velvetleaf	(Abutilon theophrasti)		X
Violet, wild	(Viola pratincola)		X
Wild garlic	(Allium vineale)		X
Wild onion	(Allium canadense)		X
Woodsorrel, creeping	(Oxalis corniculata)		X

 Weeds are suppressed at lower label rates (<24 fl oz/acre). For optimum control apply rates of at least 24 fl oz per acre in a single application. Do not exceed the application rate specified for the turf species in Table 1.

2. Echelon 4SC herbicide controls crabgrass and goosegrass when applied postemergent to newly emerged weeds up to the 1-4 leaf stage of development.

Application to Reseeded, Overseeded or Sprigged areas

Reseeding, overseeding or sprigging of treated areas within three to twelve (3-12) months after application of this product could inhibit the establishment of desirable grasses. [See table for exact intervals from application].

Best results are obtained for reseeding or overseeding when mechanical or power seeding equipment (slit seeders) are used to give good seed to soil contact and proper soil cultivation, irrigation and fertilization practices are followed.

Table 4. Overseeding Intervals after Echelon 4SCherbicide Applications

Total Amount of Echelon 4SC herbicide Applied	4SC herbicide Interval (Months Before Overseeding)		
Ounces Product/Acre	North	Transition	South
8 - 12	3	3	3
18	3	3	3

24	4	4	4
36	6	5	5

Sod Production

It is recommended that sod be established for at least four (4) months before an application of Echelon 4SC Herbicide. Do not apply this product within three (3) months of harvest.

Restrictions

Do not apply to golf course putting greens or tees.

Do not use on turgrasses other than those listed on this label.

Do not graze or feed livestock, forage cut from areas treated with Echelon 4SC herbicide.

Do not apply directly to landscape ornamental foliage or ornamental beds containing dormant bulbs or non-woody perennials.

Do not apply to areas where dichondra, colonial bentgrass, velvet bentgrass or annual bluegrass (*Poa annua*) are desirable species.

Do not apply to creeping bentgrass if mowing height is less than 0.5 inch.

Do not harvest treated sod before 90 days after application.

Do not apply to newly set sod until the sod has rooted and exposed edges have grown in.

Do not apply with surfactants unless previous experience has demonstrated combinations with surfactant to be physically compatible and non-injurious to the grass type in question.

Temporary turfgrass discoloration has been observed when a Primotype plant growth regulator has been either tank-mixed or applied within. 7 days of a Echelon 4SC herbicide application. It is recommended that Primo-type plant growth regulator applications be made 7 days prior to, or after Echelon 4SC herbicide application to reduce risk of turfgrass discoloration.

DIRECTIONS FOR USE IN SELECTIVE WEED CONTROL IN CONTAINER AND FIELD GROWN ORNAMENTALS

Apply as a directed spray toward the base of the plant. Do not spray over-the-top. Echelon 4SC herbicide is most effective when applied to soil free of clods, weeds, debris such as leaves or mulch. Apply preemergence with at least 0.25 inches of irrigation or rainfall to insure the product is activated in the soil before weed seeds germinate.

The addition of liquid fertilizers and/or surfactants can increase the probability of superficial damage to green plant tissue inadvertently treated with Echelon 4SC herbicide. Tank mixing with liquid fertilizers is not recommended. Apply with liquid fertilizers and/or surfactants only if previous experience has demonstrated combinations to be physically compatible and non-injurious to the ornamental plant type in question.

Use Precautions

1. Direct application of Echelon 4SC herbicide onto actively growing foliage can cause unacceptable injury to desirable plants. See Table 5 for a list of tolerant plants. To reduce injury, apply Echelon 4SC herbicide as a site directed spray to the soil around the base of the plant. Avoid application directly to plant foliage where possible. However, if the application makes contact with the foliage, apply overhead irrigation to wash Echelon 4SC herbicide from the plant surfaces onto the soil.

2. Do not apply to areas where ornamental bulbs or dormant nonwoody perennials are present. Echelon 4SC herbicide is soil-active and may damage these plants upon emergence.

Tolerant Ornamental Species

The species listed below in Table 5 are tolerant to Echelon 4SC herbicide. Apply only to listed tolerant ornamental species.

When plants are under stress (such as heat, drought or frost damage), some cultivars of listed plants may be sensitive to Echelon 4SC herbicide.

Table 5. Tolerant Ornamental Species

Table 5: Tolefant Officinental Species		
Common name	Scientific name	
Anise Tree	Illicium spp.	
Arborvitae	Thuja spp.	
Azalea and Rhododendron	Rhododendron spp.	
Boxwood Species	Buxus spp.	
Bridal - Wreath	Spiraea prunifolia	
Cape Jasmine, Radicans	Gardenia augusta	
Cedar, Western Red	Thuja plicata	
Crape Myrtle	Lagerstroemia indica	
Cypress, Bald	Taxodium distichum	
Douglas Fir	Pseudotsuga menziesii	
Fraser Fir	Abies fraseri	
Holly	llex spp.	
Holly, Dwarf Yaupon	llex vomitora 'Nana'	
Holly, Meserve	llex x meserveae	
Juniper	Juniperus spp.	
Juniper, creeping	Juniperus horizontalis	
Magnolia	Magnolia spp.	
Maple, Red	Acer rubrum	
Palm, Windmill	Trachycarpus fortune	
Rose	Rosa spp.	
Spruce, White	Picea glauca	
Yew	Taxus spp.	

Table 6. Application Sites and Instructions

Site				Application Instructions	
Newly-Transplanted Nursery Stock	Container	or ·	Field	Apply after new transplant material has formed roots and is well established Do not apply until soil has settled around transplants. Direct application of toward base of plant and avoid terminal and bud area of plant.	
Established Containe Landscape Plants	r, Field Nurse	ery St	ock, or	Apply at any time as a directed spray toward the base of the plant. Do not apply to herbaceous or bulb plants. Also do not apply in areas where herbaceous or bulb plants are planted.	

Table 7. How Much Echelon 4SC herbicide to Apply

Amount to Apply (Broadcast)*	Comments
12 - 36 fl oz/A 0.275 – 0.83 fl oz/1000 sq ft	1. For preemergence sedge control, apply 18-36 fl oz/A in a single application, or 12 oz followed by another 12-24 fl oz/A 45 -60 days apart.
	 Multiple applications may be made if needed as long as total amount applied in one year does not exceed 36 fl oz/A.
	3. Direct application toward base of plants.

*Do not use on food producing trees, vines, or plants

Preemergence Control of Annual Broadleaf Weeds and Sedges

Echelon 4SC herbicide will control or suppress the weeds listed in Table 8. When applied prior to weed germination, apply Echelon 4SC herbicide at a rate of 12 to 36 fl oz/A. To broaden the weed spectrum and increase effectiveness for certain weeds listed in Table 8, Echelon 4SC herbicide may be tank mixed with other EPA registered preemergence herbicides. Refer to the Tank Mixtures Compatibility section of this label to determine compatibility of tank mixtures. Consult the label for application instructions for each of the tank mix products. Follow all label restrictions, use directions and precautionary statements before using these tank mixtures. Control of emerged annual grass weeds may be improved by combining Echelon 4SC herbicide with other postemergence herbicides.

Table 8. Weeds Controlled With Preemergence Application

Common Name	Scientific Name	
Barnyardgrass	(Echinochloa crus-galli)	
Blue-eyed grass, annual	Sisynnchium rosulatum	
Bluegrass, annual ¹	(Poa annua)	
Carpetweed	(Mollugo verticillata)	
Carolina geranium	Geranium carolinianum	
Chickweed, common ²	(Stellaria media)	
Chickweed,mousear (from seed)	(Cerastium vulgatum)	
Crabgrass (Large, Smooth)	(Digitarià spp.)	
Crowfootgrass	(Dactyloctenium aegyptium)	
Cupgrass, woolly	(Eriochloa villosa)	
Foxtails, annual	(Setaria spp.)	
Goosegrass ⁴	(Eleusine indica)	
Bittercress, hairy	(Cardamine hirsute)	
Henbit ²	(Lamium amplexicaule)	
tchgrass	(Rottboellia exaltata)	
Knotweed, prostrate	(Polygonum aviculare)	
Kochia	(Kochia scoparia)	
Kyllinga, green	(Kyllinga brevifolia)	
Kyllinga, false	(Kyllinga gracillima)	
ambsquarters, common	(Chenopodium album)	
Lovegrass	(Eragrostis spp.)	
Nutsedge, yellow	(Cyperus esculentus)	
Pancium (Texas,Fall)	(Panicum spp.)	
Pigweed, redroot	(Amaranthus retroflexus)	
Purslane, common	(Portulaca oleracea)	
Pusley, Florida	(Richardia scabra)	
Sedge, globe 💦 🔪	(Cyperus globulosus)	
Sedge, cylindrical	(Cyperus retrorsus)	
Sedge, surinam	(Cyperus surinamensis)	
Sedge, Texas	(Cyperus polystachyos)	
Shephardspurse ²	(Capsella bursa-pastoris)	
ignalgrass, broadleaf	(Brachiaria playphylla)	
Speedwell	(Veronica spp.)	
Sprangletop	(Leptochola spp.)	
Spurge, prostrate	(Euphorbia humistrata)	
Witchgrass	(Panicum capillare)	
Voodsorrel, yellow (from seed)	(Oxalis stricta)	

 Poa annua is a winter annual. Make applications of Echelon 4SC herbicide before Poa annua germinates. Approximate timing for applications are August – September but consult your local Cooperative Extension Service for more specific applications timings for your local area.

For maximum control, apply Echelon 4SC herbicide in late summer, fall or winter before weeds germinate.

3. In areas of extended growing season and heavy pressure, weed control will be enhanced by making a second application of Echelon 4SC herbicide 60-90 days after the initial application, up to a maximum of 36 oz/A/year.

Postemergence Control of Annual, Biennial & Perennial Broadleaf Weeds

Echelon 4SC herbicide will control or suppress the weeds listed in Table 10 when applied alone shortly after weeds have emerged. Apply Echelon 4SC herbicide at rates from 12 to 36 fl oz/A (0.275 to 0.83 fl oz/1,000 sq ft). To broaden the weed spectrum and increase effectiveness for certain weeds listed in Table 9, Echelon 4SC herbicide may be tank mixed with other EPA registered postemergence herbicides. Refer to the **Tank Mixtures Compatibility** section of this label to determine compatibility of tank mixtures. Consult the label for application instructions for each of the tank mix products. Follow all label restrictions, use directions and precautionary statements before using these tank mixtures. Control of emerged annual grass weeds may be improved by combining Echelon 4SC herbicide with other registered post-emergence herbicides.

Table	9.	Weeds	Controlled	or	Suppressed	When	
Applic	ation	Made Pos	st-emeraence	to \	Weeds		

Common Name	Scientific Name	Controlled	Suppressed	
Bittercress	(Cardamine spp.)		X	
Black medic	(Medicago lupulina)		X	
Buttercups	(Ranunculus spp.)		X	
Carolina geranium	(Geranium carolinianum)	1		
Carpetweed (Mollugo verticillata)			X	

Chickweed, common	(Stellaria media)	1	
Chickweed, mousear	(Cerastium vulgatum)		X
Cinquefoil	(Potentilla spp.)		X
Clover	(Trifolium spp.)		X
Crabgrass (Large and Smooth)	(Digitaria spp.)	2	
Cudweed	(Gnaphalium spp.)		X
Dandelion	(Taraxacum officinale)		X
Dock, Curly	(Rumex crispus)		X
Evening primrose	(Oenothera biennis)	1	X
Fiddleneck	(Amsinckia spp.)	<u> </u>	X
Filaree	(Erodium spp.)	<u> </u>	X
Goldenrod	(Solidago spp.)		~~~
Goosegrass	(Eleusine indica)	2	
Ground ivv	(Glechema hederacea)	1 1	
Henbit	(Lamium amplexicaule)		
Knotweed, prostrate	(Polygonum aviculare)	++	<u> </u>
Kochia	(Kochia scoparia)	1 1	<u> </u>
Lambsguarters, common	(Chenopodium album)	<u> </u>	x
		<u> </u>	
Lawn burweed	(Soliva pterosperma)	· · · · · · · · · · · · · · · · · · ·	<u> </u>
Lespedeza, common	(Lespedeza striata)	<u>├</u>	X
Mallow, common	(Malva neglecta)		X
Nutsedge, yellow	(Cyperus esculentus)	1	
Parsley piert	(Alchemilla arvensis)	1	
Pigweed, redroot	(Amaranthus retroflexus)	1	
Pigweed, tumble	(Amaranthus albus)	1	
Pineappleweed	(Matricaria matricarioides)		X
Plantain, buckhorn	(Plantago lanceolata)	1	
Puncturevine	(Tribulus terrestris)		X
Purslane, common	(Portulaca oleracea)		X
Pusley, Florida	(Richardia scabra)	1	
Redweed	(Melochia corchorifolia)		X
Rocket, London	(Sisymbrium irio)		X
Smartweed,	(Polygonum	1 1	
Pennsylvania	pensylvanicum)	<u>'</u>	
Sorrel, red	(Rumex_acetosella)		<u>X</u>
Speedwell	(Veronica spp.)	1	
Spurge, (annuals)	(Euphorbia spp.)	1	
Spurge, prostrate	(Euphorbia humistrata)	1	
Spurge, spotted	(Euphorbia maculata)	1	
Star-of-Bethlehem	(Ornithogalum umbellatum)	1	
Velvetleaf	(Abutilon theophrasti)		Х
Violet, wild	(Viola pratincola)		X
Wild garlic	(Allium vineale)		X
Wild onion	(Allium canadense)	<u> </u>	X
Woodsorrel, creeping	(Oxalis comiculata)	[X
Woodsorrel, yellow	(Oxalis stricta)	1	
	was label rotes (<24 fl a=/A)	·	

Weeds are suppressed at lower label rates (<24 fl oz/A). For optimum control apply rates of at least 24fl oz/A in a single application. Do not exceed the application rate specified for the ornamental species in Table 5. Sequential applications may be needed when using lower rates and must not exceed 36 fl oz/A/sea.

 Echelon 4SC herbicide controls crabgrass and goosegrass at rates ranging from 18-36 fl oz/A when applied during the 1-4 leaf development stage.

Restrictions

1.

Do not use on herbaceous or bulb ornamental plants.

Do not graze or feed livestock plant material cut from areas treated with Echelon 4SC herbicide.

Do not apply in greenhouses.

Do not apply adjuvants or surfactants with post applications of Echelon 4SC Herbicide unless tested on small areas prior to broadcast applications.

DO NOT apply Echelon 4SC Herbicide to soils classified as sand with less than 1% organic matter.

Other Use Precautions

For best results, apply Echelon 4SC Herbicide alone or in combination with other herbicides for residual control of weeds in late summer, fall, or early spring to insure adequate moisture for soil activation.

ADDITIONAL USE INSTRUCTIONS

Railroad Rights-of-Way

Controls many weeds and maintains bare ground on railroad rights-ofway, including railroad yards, railroad crossings and railroad bridge abutments.

Highway, Roadside, Pipeline and Utility Rights-of-Way

Controls many weeds and maintains bare ground in highway, roadside, pipeline and utility rights-of-way. Such areas would include, but are not limited to, guardrails, road shoulders, electric utility substations, pipeline pumping stations, around electric transmission towers, around distribution line poles plus other areas where complete vegetation control is desired.

Industrial Areas, Fence Rows and Other Non-crop Sites

Controls weeds and maintains bare ground in industrial areas including production facilities, tank farms, storage areas, parking areas, lumber yards, airports, military installations, along fence rows, and in similar non-crop sites where complete vegetation control is needed.

METHOD AND RATE OF APPLICATION FOR ADDITIONAL USES

For residual control of germinating weeds in non-crop land, apply as a broadcast treatment using 24 to 36 fluid ounces (0.75 to 1.125 pounds active ingredient) per acre by ground in a minimum of 10 gallons of spray solution per acre. Applications may be made by helicopter on railroad rights-of-way only.

DO NOT apply Echelon 4SC herbicide to soils classified as sand with less than 1% Organic Matter.

Use labeled rates of burndown herbicides such as glyphosate, glyphosate-trimesium, diquat, 2,4-D, dicamba, etc. as tank mixtures with Echelon 4SC herbicide. Use recommended adjuvants for the herbicide tank mix partner. For all products used in tank mixes, refer to the specific product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotational cropping restrictions.

Timing

For best results, apply Echelon 4SC herbicide alone or in combination with other herbicides for residual control of weeds in late summer, fall, or early spring to insure adequate moisture for soil activation.

Weeds Controlled

Echelon 4SC herbicide when applied post-emergence at 24 to 36 fluid ounces per acre, will control the following weeds in non-cropland areas (Table 10). Use the higher labeled rates to extend length of control. Use the higher rates on sites with fine soil textures and on sites with more than 2% organic matter.

Table 10.	Weeds	Controlled	from	Pre-emergence	Application	to
Bare Gro	und Prio	r to Weed S	eed g	ermination	••	

Common Name	Scientific Name
Barnyardgrass	(Echinochloa crus-galli)
Blue-eyed grass, annual	Sisyrinchium rosulatum
Bluegrass annual	(Poa annua)
Carpetweed	(Mollugo verticillata)
Carolina Geranium	Geranium carolinianum
Chickweed, common	(Stellaria media)
Chickweed, mousear (from seed)	(Cerastium vulgatum)
Crabgrass (large, Smooth)	(Digitaria spp.)
Crowfootgrass	(Dactyloctenium aegyptium.)
Cupgrass, Woolly	(Eriochloa villosa)
Foxtails, Annual	(Setaria spp)
Goosegrass	(Eleusine indica)
Hairy Bittercress	Cardamine hirsute

(Lamium amplexicaule).
(Rottboellia exaltata)
(Polygonum aviculare)
(Kochia scoparia)
(Kyllinga brevifolia)
(Chenopodium album)
(Eragrostis spp.)
(Cyperus esculentus)
(Cyperus rotundus)
(Panicum spp.)
(Amaranthus retroflexus)
(Portulaca oleracea)
(Richardia scabra L.)
(Cyperus globulosus)
(Cyperus retrorsus)
(Cyperus surinamensis)
(Cyperus polystachyos)
(Capsella bursa-pastoris)
(Brachiaria playphylla)
(Veronica spp.)
(Leptochola spp.)
(Euphorbia humistrata)
(Panicum capillare L.)
(Oxalis stricta)

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