



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

FEB 17 1994

file

Douglas M. Roby
DOWELANCO
9330 Zionsville Road
Indianapolis, IN 46268

OFFICE OF
PREVENTION, PESTICIDES AND
REGISTRATION

SUBJECT: Label Amendment Submission of 07/27/93 in Response to PR Notice 93-7
EPA Reg. No. 62719-140
SURFLAN 0.25 A.S.

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, successfully **REMOVES THE PRODUCT FROM THE SCOPE** of PR Notice 93-7 once the comments (if any) on the attached sheet are addressed. Other than the alterations (if any) listed on the attached sheet, no further alterations to the labeling are necessary to reflect the requirements of the Worker Protection Standard.

Since your amendment proposes to delete uses directly and/or to delete uses implicitly through the use of exclusionary statements, the Agency will publish in the Federal Register a notice of receipt of your amendment to delete uses, as required by section 6(f)(1) of FIFRA. The Agency will defer action for 90 days from the date of the Federal Register notice to give affected minor users an opportunity to try to persuade you to retain the uses(s). When the comment period has expired, the Agency will approve the amendment unless you have withdrawn it, and stamp the amended labeling "accepted." Your stamped-accepted labeling will then be sent to you.

As described in Supplement A of PR Notice 93-11 (self-verification option), you may sell and distribute product bearing the submitted labeling before you receive a copy of your stamped-accepted labeling. Note that your registration is not amended until the comment period required by section 6(f)(1) of FIFRA has expired and the Agency has approved the amendment. Therefore, you may withdraw your proposed amendment at any time during the comment period and until you receive your stamped-accepted labeling.

Sincerely,

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

Enclosures



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contains at least 50% recycled fiber

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division

Douglas M. Roby
DOWELANCO
9330 ZIONSVILLE RD
INDIANAPOLIS IN 46268

Subject: Label Amendment Submission of 07/27/93
in Compliance with the PR Notice 93-7
EPA Reg Nr. 62719-140
SURFLAN 0.25 A.S.

Modify the exclusionary statement to conform to the EPA-
approved language specified in PRN 93-11.

Revisions:

- 1) Added a statement to the General Use Precautions section of the label to remove this product from the scope of the Worker Protection Standard.

DowElanco

ELANCO — 10 5817

Herbicide

Surflan®

TM

0.25 A.S.

Net Contents 55 Gallons

A selective preemergence surface-applied herbicide for use in established ornamentals and southern turfgrasses for the control of annual grasses and many broadleaf weeds in:

Container Grown Ornamental Plants
 Drainage Areas Under Greenhouse Benches
 Field Grown Roses
 Ground Cover
 Noncropland Areas
 Nursery Stock

Ornamental Plants (Including around Highway and Industrial Sites)
 Ornamental Trees
 Ornamental Woody Shrubs
 Southern Turfgrasses (Including Bahiagrass, Bermudagrass, Centipedegrass, St. Augustinegrass, Tall Fescue and Zoysiagrass)

Active Ingredient: oryzalin* (3,5-dinitro-N,N-dipropylsulfanlamide) 3%
 Inert Ingredients 97%
 Contains 0.25 pounds active ingredient per gallon.

~~Surflan® (oryzalin, Elanco)~~

ACCEPTED with COMMENTS In EPA Letter Dated

FEB 17 1994

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 62719-140

Avoid Freezing—Store Above 40°F

Keep Out of Reach of Children.

CAUTION

See back of container for additional precautionary statements.

FN 7155
EPA Reg. No. ~~1471-153~~ 62719-140

EPA Est. 37429-GA-01; 34704-NB-02
Superscript used is first letter of lot number

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Directions for Use

Read All Directions Carefully
Before Applying

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

See Attached Literature for Complete Directions for Use.

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Avoid breathing spray mist, ingestion and contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Statements of Practical Treatment

If in eyes: Flush eyes with plenty of water. Call a physician if irritation develops.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation develops.

If swallowed: Call a physician or Poison Control Center.

If inhaled: Remove individual to fresh air. If breathing difficulty occurs, get medical attention.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

Storage: Avoid freezing. Store above 40°F. Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

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XPRM-5436

~~Elanco Products Company • A Division of Eli Lilly and Company~~
~~Indianapolis, IN 46205, U.S.A.~~

DowElanco - Indianapolis, IN 46268

DowElanco

ELANCO

18-1077



A selective preemergence surface-applied herbicide for use in established ornamentals and southern turfgrasses for the control of annual grasses and many broadleaf weeds

Active Ingredient
 Oryzalin* (3,5-Dinitro-N,N'-dipropylsulfanilamide) 3%
 Inert Ingredients 97%
 Contains 0.25 pounds active ingredient per gallon

Surflan (oryzalin-Elanco)
 EPA Reg. No. 1471-153 62719-140

Elanco Products Company DowElanco
 A Division of E.I. Lilly and Company Indianapolis, IN 46268
 Indianapolis, IN 46265, U.S.A.

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Literature issued May 25 1988
 XPRM 5433

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Table of Contents	Page
Precautionary Statements	3
Storage and Disposal	4
Ornamental and Noncropland Areas	4
General Use Precautions	4
Grasses Controlled by Surtlan Alone	5
Broadleaf Weeds Controlled by Surtlan Alone	6
Directions for Use	8
Soil Preparation	8
Mixing Directions	8
Surtlan Alone in Water	8
Surtlan Tank-Mix in Water	8
Application	10
Ground Application	10
Activation and Cultivation	10
Recommended Species	11
Ornamental Plants	11
Field Grown Fruit Tree Nursery Liners	17
Recommendations - Surtlan Alone	18
Recommendations - Tank-Mix Combinations	18
Ornamental Plantings and Noncropland Areas	18
Surtlan/Roundup Tank-Mix	18
Industrial Sites	20
Southern Turfgrass Areas	20
Grasses Controlled by Surtlan	21
Broadleaf Weeds Controlled by Surtlan	22
General Use Directions	23
Application Directions	23
Spring Germinating Summer Annual	23

Grasses and Broadleaf Weeds	23
Annual Bluegrass (<i>Poa Annua</i>) and Broadleaf Weeds	24
Application Equipment	25
Reseeding	25
Precautions	26
Disclaimer of Warranties	27
Limitation of Damages	27

Precautionary Statements

Keep Out of Reach of Children

CAUTION

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If inhaled: Remove individual to fresh air. If breathing difficulty occurs, get medical attention.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

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STORAGE AND DISPOSAL

Storage: Avoid freezing. Store above 40°F. Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Ornamental and Noncropland Areas

General Use Precautions

Apply only to established plantings. Rooted liners should be established in containers two weeks prior to treatment or crop injury may occur.

On container grown ornamentals where weed seed germination continues for extended periods of time, subsequent applications of Surflan should not be made any sooner than 90 days or crop injury may occur.

Do not apply Surflan in ornamental plantings where the likelihood of runoff onto lawn areas containing dichondra or cool-season turfgrass species exists as

4

severe injury or death may occur. Poor weed control may result if directions are not followed. Overapplication may result in crop injury or excessive soil residue.

Plant only ornamental species listed on this label into soil treated the previous season with Surflan or injury may occur.

Chemigation: Do not apply this product through any type of irrigation system

Grasses Controlled by Surflan Alone

Common Name	Scientific Name
Barley, little	<i>Hordeum pusillum</i>
Barnyardgrass (Watergrass)	<i>Echinochloa crus galli</i>
Bluegrass, annual	<i>Poa annua</i>
Brachiaria (Signalgrass)	<i>Brachiaria spp</i>
Crabgrasses (Large crabgrass) (Smooth crabgrass)	<i>Digitaria spp</i>
Crowfootgrass	<i>Dactyloctenium aegyptium</i>
Cupgrass, southwestern	<i>Eriochloa gracilis</i>
Foxtails (Bottlegrass) (Bristlegrass) (Giant foxtail) (Green foxtail) (Pigeongrass) (Robust foxtail) (Yellow foxtail)	<i>Setaria spp</i>

Do not apply this product to sod farms, turfgrasses grown for seed, farms, greenhouses or nurseries, including plants or plant materials grown for sale or research purposes.

5

<u>Common Name</u>	<u>Scientific Name</u>
Goosegrass (Silver crabgrass)	<i>Elysius indica</i>
Johnsongrass (Seeding only)	<i>Sorghum halepense</i>
Junglerice	<i>Echinochloa colonum</i>
Lovegrass, Mexican	<i>Eragrostis mexicana</i>
Lovegrass, orcutt	<i>Eragrostis orcuttiana</i>
Oat, wild	<i>Avena fatua</i>
Panicum, browntop	<i>Panicum fasciculatum</i>
Panicum, fall (Spreading panicgrass)	<i>Panicum dichotomiflorum</i>
Panicum, Texas	<i>Panicum texanum</i>
Buffalograss	
Coloradograss	
Ryegrass, Italian	<i>Lolium multiflorum</i>
Sandbur, field	<i>Cenchrus incertus</i>
Sprangletop, red	<i>Leptochloa filiformis</i>
Witchgrass	<i>Panicum capillare</i>

**Broadleaf Weeds Controlled by
Surflan Alone**

<u>Common Name</u>	<u>Scientific Name</u>
Buttercrass	<i>Cardamine spp</i>
Carpelweed	<i>Mollugo verticillata</i>
Chickweed, common	<i>Stellaria media</i>
Fiddleneck, coast	<i>Amsinckia intermedia</i>
Filaree, redstem	<i>Erodium cicutarium</i>
Filaree, whitestem	<i>Erodium moschatum</i>
Groundsel, common	<i>Senecio vulgaris</i>

<u>Common Name</u>	<u>Scientific Name</u>
Henbit	<i>Lamium amplexicaule</i>
Knotweed, prostrate	<i>Polygonum aviculare</i>
Lambsquarters	<i>Chenopodium album</i>
Pigweeds (Carelessweed) (Prostrate pigweed) (Redroot) (Rough pigweed) (Spring pigweed) (Tumble pigweed)	<i>Amaranthus spp</i>
Puncturevine	<i>Tribulus terrestris</i>
Purslane, common	<i>Portulaca oleracea</i>
Pusley, Florida (Florida purslane) (Mexican clover) (Pusley)	<i>Richardia scabra</i>
Rocket, London	<i>Sisymbrium irio</i>
Rockpurslane, desert	<i>Calandrinia ciliata</i>
Shepherdspurse	<i>Capsella bursa pastoris</i>
Spurge, prostrate	<i>Euphorbia humistrata</i>
Woodsorrel, yellow	<i>Oxalis stricta</i>

Suppression of the following weeds may be erratic, ranging from poor to excellent, depending upon soil temperature, time of germination, depth of seed in the soil, amount and timing of soil moisture

annual sowthistle	morningglory
black mustard	prickly lettuce
black nightshade	smartweed
climbing milkweed	spotted spurge
common mallow	teaweed (prickly sida)

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common ragweed	velvetleaf
horseweed	volunteer wheat
ladysthumb	wild mustard

Surflan will not control established weeds.

Directions For Use

Read All Directions Carefully
Before Applying

Surflan is a preemergence surface-applied herbicide for the control of annual grasses and many broadleaf weeds.

Soil Preparation

Surflan will not control established weeds. Therefore, areas to be treated should be free of established weeds. Weed residues, prunings and trash should be thoroughly mixed into the soil or removed prior to treatment. The soil should be in good tilth and free of clods at the time of application.

Mixing Directions

Surflan Alone in Water

Start with a clean spray tank. Fill sprayer one-third (1/3) to one-half (1/2) full with clean water. Start agitation. Add correct quantity of Surflan, continue agitation and finish filling the tank. Maintain agitation from mixing through application.

Surflan Tank-Mix in Water

Vigorous, continuous agitation is required for all tank-mixes. Sparger pipe agitators generally provide the best agitation in spray tanks. Avoid stirring or splashing air into the mixture during filling to prevent foaming. To do this, place the end of the fill pipe below the

surface of the water in the spray tank. Do not allow the mixture to siphon back into the water source.

Mixing Order: Fill the tank three-fourths (3/4) full with clean water. Start the agitation. Add dry flowables or wettable powders (WP) and agitate until the products are completely dispersed in the water. Allow additional mixing and dispersion time when using dry flowable type products. Add Surflan A S or other liquids and agitate until completely dispersed in the water. Next add any solution (S) products, mix thoroughly. Add emulsifiable concentrate (EC) products last, agitate and finish filling the tank. Maintain agitation from mixing through application. If spraying and agitation must be stopped before the tank is empty, the materials may settle to the bottom. In this case, it is important to again suspend all of the material in the bottom of the tank before continuing the spray application. A sparger agitator is particularly useful for this purpose. Sometimes it is more difficult to suspend settled material than it is to suspend it originally.

Read and carefully follow all label instructions for each material added to the tank. Premixing dry and flowable formulations with water (slurrying) and pouring the slurry through a 20 or 35 mesh wetting screen in the top of the tank will help assure good initial dispersion in the tank water. Fine screens in the tank should be no finer than 50 mesh (100 mesh is finer than 50 mesh).

If you see a buildup of material on the walls of the spray tank, wash the tank with soapy water between fillings. Rinse and continue the spraying operation.

Clean the tank, lines, and screens thoroughly after use.

Application

Ground Application: Apply Surflan as a directed spray to the soil surface or as an overtop spray. Apply Surflan in sufficient water per acre to uniformly treat the area. Use only a properly calibrated, low-pressure herbicide sprayer that will apply the spray uniformly. Use herbicide tips and screens no finer than 50 mesh in nozzle and in-line strainers. As the amount of water used (spray volume) decreases, the importance of accurate calibration and uniform application increases. Check the sprayer daily to ensure proper calibration and uniform application. Maintain agitation from mixing through application. Avoid boom overlaps that will increase rates above those recommended.

Activation and Cultivation

Surflan will remain stable on the soil surface up to 21 days. In the absence of timely rainfall, irrigation can be used to move Surflan into soil surface. A one-half (1/2) inch rain or its equivalent in sprinkler irrigation is necessary to activate Surflan. If weeds begin to emerge due to lack of rainfall or irrigation, shallow cultivate (1 to 2 inches) to destroy existing weeds or remove by hand in containers and place Surflan in the weed germination zone. Shallow cultivation (1 to 2 inches) will not reduce herbicidal effectiveness. If Surflan is not activated by rainfall, irrigation or cultiva-

tion within 21 days of application, erratic weed control may result.

Recommended Species

Ornamental Plants

Surflan is recommended for use on the following species.

Common Name	Scientific Name
Abelia, Glossy	<i>Abelia grandiflora</i>
Apple, Common	<i>Malus</i> spp
Arborvitae, Giant	<i>Thuja plicata</i>
Arborvitae, Oriental	<i>Thuja orientalis</i>
Azalea	<i>Rhododendron</i> spp cv "Louisa" cv "Stewartsonianum"
Barberry, Japanese	<i>Barbaris thunbergii</i>
Begonia	<i>Begonia semper florans</i>
Brd-of-Paradise	<i>Strelitzia reginae</i>
Bottlebrush, Lemon	<i>Callistemon citrinus</i>
Boxwood, Common	<i>Buxus sempervirens</i>
Boxwood, Japanese	<i>Buxus microphylla</i>
Brushcherry	<i>Eugenia paniculata</i>
California laurel	<i>Umbellularia californica</i>
Capejasmine	<i>Gardenia jasminoides</i>
Capemarygold	<i>Cryptostemma calendula</i>
Cherry, Mahaleb	<i>Prunus mahaleb</i>
Cherry, Mazzard (Sweet)	<i>Prunus avium</i>
Chrysanthemum, Florists	<i>Chrysanthemum morifolium</i>
Cleyera, Japanese	<i>Cleyera japonica</i>
Cotoneaster	<i>Cotoneaster lactea</i>

<u>Common Name</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Scientific Name</u>
Coloneaster, Bearberry*	<i>Coloneaster dammeri</i>	Fir, Grand	<i>Abies grandis</i>
Coloneaster, Brightbead	<i>Coloneaster glaucophylla</i>	Fir, Veitch	<i>Abies veitchi</i>
Coloneaster, Cranberry*	<i>Coloneaster apiculata</i>	Fir, White (concolor)	<i>Abies concolor</i>
Coloneaster, Pyrenees	<i>Coloneaster congesta</i>	Firethorn*	<i>Pyracantha fortuneana</i>
Coloneaster, Rock*	<i>Coloneaster horizontalis</i>	Firethorn, Formosa*	<i>Pyracantha koidzumii</i>
Coloneaster, Rockspray	<i>Coloneaster microphylla</i>	Firethorn, Scarlet*	<i>Pyracantha coccinea</i>
Coyotebush, Dwarf	<i>Baccharis pilularis</i>	Forsythia, Border	<i>Forsythia intermedia</i>
Crapemyrtle, Common*	<i>Lagerstroemia indica</i>	Gazania, Treasureflower	<i>Gazania rigens</i>
Cryptomeria, Japanese*	<i>Cryptomeria japonica</i>	Geranium	<i>Pelargonium hortorum</i>
Cypress, Italian*	<i>Cupressus sempervirens</i>	Ginkgo*	<i>Ginkgo biloba</i>
Daisy, Trading African	<i>Osteospermum fruticosum</i>	Goldenrain Tree	<i>Koeleruteria</i>
Douglasfir	<i>Pseudotsuga taxifolia</i>		<i>paniculata</i>
Eastercactus*	<i>Schlumbergera gaertneri</i>	Hibiscus, Chinese	<i>Hibiscus rosa sinensis</i>
Escallonia*	<i>Escallonia frades</i>	Holly, Chinese*	<i>Ilex cornuta</i>
Eucalyptus, Mealy	<i>Eucalyptus cinerea</i>	Holly, Convexleaf	<i>Ilex crenata</i> var
Stringybark		Japanese*	"Convexa"
Eucalyptus,	<i>Eucalyptus sideroxylon</i>	Holly, English	<i>Ilex aquifolium</i>
Mulga, Ironbark		Holly, Howard	<i>Ilex crenata</i> var
Eucalyptus,	<i>Eucalyptus nicholii</i>	Japanese*	"Howardi"
Narrow-Leaved		Honeysuckle, Japanese	<i>Lonicera japonica</i>
Euonymus*	<i>Euonymus fortunei</i> var	Hopseedbush, Clammy	<i>Dodonaea viscosa</i>
	"Vegetus"	Ice Plant	<i>Mesembryanthemum</i>
Euonymus, Evergreen*			<i>crystallinum</i>
(Japanese Spindle Tree)	<i>Euonymus japonicus</i>	Ice Plant, Largeleaf	<i>Mesembryanthemum</i>
Euonymus, Winged	<i>Euonymus alatus</i>		<i>edule</i>
Falsecypress, Lawson	<i>Chamaecyparis</i>	Ivy, Algerian	<i>Hedera canariensis</i>
	<i>lawsoniana</i>	Ivy, English	<i>Hedera helix</i>
Fatshedera*	<i>Fatshedera lizei</i>	Jerseytea (redroot)*	<i>Ceanothus americanus</i>
Fir, Alpine	<i>Abies lasiocarpa</i>	Juniper, Andorra	<i>Juniperus horizontalis</i> var
Fir, Balsam	<i>Abies balsamea</i>		"Plumosa"
Fir, Fraser	<i>Abies fraseri</i>	Juniper, Chinese*	<i>Juniperus chinensis</i>

<u>Common Name</u>	<u>Scientific Name</u>
Juniper, Creeping*	<i>Juniperus horizontalis</i>
Juniper, Greek*	<i>Juniperus excelsa</i>
Juniper, Japanese Garden*	<i>Juniperus procumbens</i>
Juniper, Rockymountain*	<i>Juniperus scopulorum</i>
Juniper, Savin*	<i>Juniperus sabina</i>
Juniper, Shore*	<i>Juniperus conferta</i>
Juniper, Wilson Chinese*	<i>Juniperus chinensis</i> var. "Wilsonii"
Laurelcherry, Carolina	<i>Prunus caroliniana</i>
Laurelcherry, English	<i>Prunus laurocerasus</i>
Leucothoe, Coast	<i>Leucothoe axillaris</i> *
Leucothoe, Drooping	<i>Leucothoe catesbaei</i>
Lilac, Common*	<i>Syringa vulgaris</i>
Lily-of-the-Nile*	<i>Agapanthus africanus</i>
Lilyturf, Bigblue*	<i>Liriope muscari</i>
Magnolia, Southern	<i>Magnolia grandiflora</i>
Manzanita, Stanford	<i>Arctostaphylos stanfordiana</i>
Maple, Bigtooth*	<i>Acer grandidentatum</i>
Marigold, French	<i>Tagetes patula</i>
Mockorange*	<i>Philadelphus</i> spp
Mountainlaurel	<i>Kalmia latifolia</i>
Myoporum	<i>Myoporum parvifolium</i>
Myrtle*	<i>Myrtus communis</i>
Nandina*	<i>Nandina domestica</i>
Oak, Interior Live*	<i>Quercus wislizeni</i>
Oleander*	<i>Nerium oleander</i>
Oregongrape	<i>Mahonia aquifolium</i>
Osmanthus, Holly (Holly Olive)	<i>Osmanthus ilicifolius</i>

<u>Common Name</u>	<u>Scientific Name</u>
Pansy, Garden	<i>Viola tricolor</i>
Pear, Bartlett	<i>Pyrus communis</i>
Pelargonium, Sprinter Red	<i>Pelargonium hortorum</i>
Periwinkle, Bigleaf	<i>Vinca major</i>
Periwinkle, Common	<i>Vinca minor</i>
Petunia	<i>Petunia grandiflora</i>
Petunia, Red Cascade	<i>Petunia hybrida</i>
Photinia*	<i>Photinia fraxinea</i>
Pieris, Japanese*	<i>Pieris japonica</i>
Pine, Austrian	<i>Pinus nigra</i>
Pine, Bishop	<i>Pinus muricata</i>
Pine, Canary*	<i>Pinus canariensis</i>
Pine, Coulter	<i>Pinus coulteri</i>
Pine, Eastern White	<i>Pinus strobus</i>
Pine, Japanese Black*	<i>Pinus thunbergii</i>
Pine, Monterey	<i>Pinus radiata</i>
Pine, Mugho*	<i>Pinus mugo</i> var. "Mughus"
Pine, Scotch (var Spanish and Nelson)	<i>Pinus sylvestris</i>
Pine, Virginia	<i>Pinus virginiana</i>
Podocarpus Shrubby Yew*	<i>Podocarpus macrophyllus</i>
Privet, Amur*	<i>Ligustrum amurense</i>
Privet, Glossy*	<i>Ligustrum lucidum</i>
Privet, Golden*	<i>Ligustrum vicaryi</i>
Privet, Japanese*	<i>Ligustrum japonicum</i>
Raphiolepis, Inkka	<i>Raphiolepis indica</i>
Redcedar, Eastern	<i>Juniperus virginiana</i>
Redwood, Giant	<i>Sequoia sempervirens</i>

Common Name	Scientific Name
Rhododendron*	<i>Rhododendron</i> spp. cv. "Chionoides" cv. "Hinodegiri" cv. "PJM" cv. "Rosebud"
Rose	<i>Rosa</i> spp.
Rose, Belinda*	<i>Rosa</i> spp. var. "Belinda"
Rose, Cara-Mia	<i>Rosa</i> spp. var. "Cara-Mia"
Rose-of-Sharon (Shrubalthea)	<i>Hibiscus syriacus</i>
Shrimp Plant*	<i>Beloperone guttata</i>
Snapweed, Sultan	<i>Impatiens sultani</i>
Spruce, Black	<i>Picea mariana</i>
Spruce, Colorado Blue*	<i>Picea pungens</i> var. "Glauca"
Spruce, Engelmann	<i>Picea engelmannii</i>
Spruce, Norway	<i>Picea abies</i>
Spruce, White	<i>Picea glauca</i>
Starjasmine, Chinese,	<i>Trachelospermum</i> <i>jasmnoides</i>
Stonecrop	<i>Sedum brevifolium</i>
Sweetgum*	<i>Liquidambar styracillua</i>
Trumpetvine, Violet*	<i>Clytostoma</i> <i>callistegioides</i>
Viburnum, Laurestinus*	<i>Viburnum tinus</i>
Viburnum, Sandankwa	<i>Viburnum suspensum</i>
Weigela, Oldfashioned	<i>Weigela florida</i>
Wintercreeper, Bigleaf*	<i>Euonymus fortunei</i> var. "Emerald Cushion"
Wintercreeper, Purpleleaf	<i>Euonymus fortunei</i> var. "Coloratus"

Common Name	Scientific Name
Xylosma, Japanese	<i>Xylosma japonica</i>
Yaupon*	<i>Ilex vomitoria</i>
Yew, Japanese	<i>Taxus cuspidata</i>
Yucca, Soaptree*	<i>Yucca elata</i>
Zinnia, Common	<i>Zinnia elegans</i>

*May be treated with Surflan when container grown

Precaution

Ice Plant: When establishing unrooted Ice Plant on coarse soils in landscape plantings, use only the 1.5 pint of Surflan or crop injury may occur. After the Ice Plant is well established, a second application may be made

Field Grown Fruit Tree Nursery Liners

Surflan is recommended for use on the following species:

Almond	Grapefruit	Pear
Apple	Kiwi	Pecan
Apricot	Lemon	Pistachio
Avocado	Macadamia Nut	Plum
Cherry	Nectarine	Pomegranate
Fig	Olive	Prune
Filbert	Orange	Walnut, English
Grape		
Small Fruits:		
Blackberry	Currant	Gooseberry
Blueberry	Dewberry	Loganberry
Boysenberry	Elderberry	Raspberry

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Recommendations—Surflan Alone

Broadcast Application Rates

Length of Control	Surflan A.S.
Short Term Control (2-4 months)	1.5 pints (24 fl oz) per 1000 sq ft
Long Term Control (6-8 months) (8-12 months**)	3 pints (48 fl oz) per 1000 sq ft 4.5 pints (72 fl oz) per 1000 sq ft

**Not recommended in ornamental plantings

Recommendations—Tank-Mix Combinations

Ornamental Plantings and Noncropland Areas

Tank-mix combinations of Surflan plus Roundup[®], Fusilade[®], Goal[®] and Poast[®] are recommended to control undesirable vegetation in ornamental and noncropland areas. Applied as directed these Surflan tank-mixes will provide control of susceptible species listed on the respective labels. Read the product labels for directions, precautions and limitations prior to use.

Surflan/Roundup Tank-Mix

Tank-mix combinations of Surflan/Roundup are recommended to control existing undesirable vegetation. Applied as directed, Surflan plus Roundup will provide control of susceptible species listed on the respective labels of the two herbicides.

**Broadcast Application Rates
Surflan/Roundup**

Surflan A.S. [*] Ornamental Plantings [†]	Surflan A.S. [*] Noncropland Areas	Roundup	Ounces Per 1000 sq ft
Pints Per 1000 sq ft	Pints Per 1000 sq ft	Existing Annual and Broadleaf Weeds	Per 1000 sq ft
1 1/2 - 3	1 1/2 - 4 1/2	Less Than 6" Tall	3/4
1 1/2 - 3	1 1/2 - 4 1/2	More Than 6" Tall	1 1/8
1 1/2 - 3	1 1/2 - 4 1/2	Existing Perennial Weeds	1 1/2 - 3 3/4

^{*}For length of control desired see Surflan Broadcast Application Rate Table

Precaution

Roundup is not recommended as an over-the-top spray in ornamentals. Extreme care must be exercised to avoid contact of spray containing Roundup with foliage of desirable turfgrasses, trees, shrubs, or other desirable vegetation since severe damage or destruction may result.

Note: If spraying areas adjacent to desirable plants with Roundup, use a shield made of cardboard, sheet metal, or plywood while spraying to help prevent spray from contacting foliage of desirable plants.

Industrial Sites

Tank-mix combinations of Surflan plus Spike[®], Casoron[®], Dowpon[®], Hyvar[®] X, Karmex[®] (diuron), Krovar[®] I & II, MSMA, Oust[®], Gramoxone[®], Princep[®] (simazine), Sencor[®], and Telar[®], are recommended as overtop sprays to existing vegetation in industrial areas including utility substations, highway guard rails, sign posts and delineators. Applied as directed these Surflan tank-mixes will provide control of susceptible species listed on the respective labels. Read the product labels for directions, precautions and limitations prior to use.

Southern Turfgrass Areas

Surflan is a preemergence herbicide, which is applied to established Southern turf including bahiagrass, bermudagrass, centipedegrass, established tall fescue, St. Augustinegrass and zoysiagrass for the control of annual grasses and some broadleaf weeds.

Surflan works by controlling weeds as the seeds germinate.

Surflan will not harm nearby established ornamental trees and shrubs. Do not apply Surflan on golf course putting greens.

Grasses Controlled by Surflan

Summer Annuals

<u>Common Name</u>	<u>Scientific Name</u>
Barnyardgrass (Watergrass)	<i>Echinochloa crus galli</i>
Crabgrasses (Large crabgrass) (Smooth crabgrass)	<i>Digitaria</i> spp
Crowfootgrass	<i>Dactyloctenium aegyptium</i>
Foxtails (Bottlegrass) (Bristlegrass) (Giant foxtail) (Green foxtail) (Pigeongrass) (Robust foxtail) (Yellow foxtail)	<i>Setaria</i> spp
Goosegrass (Silver crabgrass)	<i>Eleusine indica</i>
Johnsongrass (Seeding only)	<i>Sorghum halepense</i>
Ryegrass, Italian	<i>Lolium multiflorum</i>
Sandbar, field	<i>Cenchrus incertus</i>

Winter Annual

<u>Common Name</u>	<u>Scientific Name</u>
Bluegrass, Annual	<i>Poa annua</i>

Broadleaf Weeds Controlled by Surlan

Summer Annuals

<u>Common Name</u>	<u>Scientific Name</u>
Carpetweed	<i>Mollugo verticillata</i>
Knotweed, prostrate	<i>Polygonum aviculare</i>
Purslane, common	<i>Portulaca oleracea</i>

Winter Annuals

<u>Common Name</u>	<u>Scientific Name</u>
Chickweed, common	<i>Stellaria media</i>
Henbit	<i>Lamium amplexicaule</i>

Broadleaf Weeds Partially Controlled by Surlan

<u>Common Name</u>	<u>Scientific Name</u>
Groundsel, common	<i>Senecio vulgaris</i>
Spurge, prostrate	<i>Euphorbia humistrata</i>
Woodsorrel, yellow	<i>Oxalis stricta</i>

Surlan will not control established weeds

General Use Directions

Read all Directions Carefully Before Applying

Rates, Frequency and Timing of Application

Successful preemergence control of the annual grass weeds listed on this label requires proper timing of application.

Apply Surlan prior to the germination of annual grass weeds. All summer annual grasses do not germinate at the same time. If application timing does not coincide with the normal germination period of any of the annual grass weeds listed on this label, weed control results may be erratic or poor. In the absence of timely rainfall, irrigation can be used to move Surlan into the soil surface.

Any cultural practices that disturb the soil, such as aeration or verticutting, should be done prior to application of Surlan.

Application Directions

Surlan can be applied in the spring for summer annual grass and broadleaf weed control, and in the fall for *Poa annua* and winter annual broadleaf weed control.

1. Spring Germinating Summer Annual Grasses and Broadleaf Weeds

For preemergence control, apply 1.5 pints (24 ounces) Surlan per 1000 square feet per acre in late winter or early spring prior to the onset of conditions favorable for annual weed grass germination.

For application to smaller areas, apply the following amounts of Surtlan:

Surtlan A.S.	Amount Per 100 sq. ft.	Amount Per 500 sq. ft.	Amount Per 1000 sq. ft.
	2 1/2 oz.	12 1/2 oz.	24 oz.

2. Annual Bluegrass (*Poa Annua*) and Broad-leaf Winter Annuals

In areas of heavy infestation of annual bluegrass, its elimination will temporarily result in thin turfgrass areas. Proper fertilization, irrigation and soil incorporated reseeding will encourage existing desirable turfgrasses and newly planted seedling turfgrasses to fill in these thin areas previously occupied by annual bluegrass. For preemergence control, apply 18 ounces Surtlan per 1000 square feet in the late summer or early fall prior to the expected germination of annual bluegrass and broadleaf winter annual weeds.

For application to smaller areas, apply the following amounts of Surtlan:

Surtlan A.S.	Amount Per 100 sq. ft.	Amount Per 500 sq. ft.	Amount Per 1000 sq. ft.
	1 3/4 oz.	8 3/4 oz.	18 oz.

Application Equipment

Apply Surtlan evenly over the turfgrass areas without skips, misses, or overlaps. For best results use equipment designed to apply liquid herbicides and insecticides. Calibrate application equipment prior to use, according to the manufacturer's directions. Check frequently to be sure equipment is working properly and distributing spray uniformly.

Surtlan is an orange chemical. No marker dyes are needed as this orange characteristic will serve as a marker dye.

Reseeding

Chemicals that effectively control annual weeds may also affect new desirable turfgrass seedlings. Reseeding should be delayed for at least 90-120 days after applying Surtlan. When reseeding, it is essential that proper cultural practices such as soil cultivation, irrigation and fertilization be followed. For satisfactory reseeding results after using Surtlan, the amount of seed used should be increased and equipment designed to place seed in contact with the soil (such as the Rogers Aero Seeder) should be employed.

Precautions

Surflan will not control established weeds.

Surflan may injure turf that is under weakened conditions due to degree of establishment or winter climatic conditions. Apply Surflan to healthy, established turf only.

Use Surflan only as a part of a total turf management program that includes good fertilization practices.

Surflan should not be applied in the spring or summer to tall rescue turfgrass reseeded the previous fall. In bermudagrass areas that have been overseeded with winter grasses, a spring application of Surflan will thin the overseeded grasses.

Surflan should not be applied to newly sprigged areas of bermudagrass, St. Augustinegrass, centipedegrass or zoysiagrass until these turfs are well established.

Surflan should not be applied to newly hydro-mulched areas of bermudagrass until these areas are well established.

Do not spray Surflan in combination with atrazine on turf.

Areas planted with bermudagrass var. "Sun Turf" in Northern Oklahoma have shown sensitivity to Surflan treatments.

Do not apply Surflan on golf course putting greens.

Disclaimer of Warranties

Elanco Products Company makes no warranties concerning this product or its use, which extend beyond the description on the label. Elanco also expressly disclaims all warranties express or implied, in relation to any use of this product in combination or sequential use with any other product not specifically recommended in writing by Elanco Products Company. All other warranties, expressed or implied, including but not limited to, any implied warranties of merchantability and fitness for a particular purpose, are disclaimed. All statements concerning this product apply only when used as directed. This disclaimer of warranties does not apply where prohibited by operation of law.

Limitation of Damages

The liability of Elanco Products Company, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the return of the amount of the purchase price of this product and under no circumstances shall Elanco be liable for special, indirect or consequential damages. If Surflan 0 25 is used in a combination or sequential use recommended by Elanco Products Company, the liability of Elanco shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of Surflan 0 25 in such combination or sequential use. This limitation of damages does not apply where prohibited by operation of law.

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