

PM 23

62719-140

9/8/99

1 of 18

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SEP 8 1999

Mr. Steve A. McMaster
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

Dear Mr. McMaster:

SUBJECT: 8-Month Response to the Oryzalin RED
Surflan* 0.25 A.S.
EPA Registration Number: 62719-140
Your Resubmission (Revised Labeling) Dated August 30, 1999

The revised labeling for the subject product, referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. A stamped copy of the labeling is enclosed for your records. Please submit one copy of your final printed labeling before you release the product for shipment.

EPA has determined that you have fulfilled the labeling and product specific data requirements of the oryzalin RED. However, we cannot reregister this product at this time for the following reason:

- The subject product is registered for use on turfgrass, a use for which the Agency does not have sufficient information to make a reregistration eligibility decision. Once the required data (foliar dislodgeable residues/guideline 132-1a; soil dislodgeable residues/guideline 132-1b; estimation of dermal exposure/guideline 133-3; and estimation of inhalation exposure/guideline 133-4) have been reviewed by the Agency, EPA will make a reregistration eligibility decision for the turfgrass use.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Herbicide Branch
Registration Division (7505C)

Enclosure

RD:STANTON:PM Team 23:Rm. 237:CM-2:305-5218:Disk #11:62719-140.RRE

CONCURRENCES

SYMBOL *	7505C							
SURNAME *	S. Stanton							
DATE *	Sep 8, 1999							

Surflan* 0.25 A.S.

EPA Reg. No. 62719-140

Registration Notes:

Current label text based on EPA -accepted final printed labeling dated July 11, 1994.

The following changes are being submitted in Response to EPA correspondence dated January 13, 1999. The label for this product has been amended in accordance with the Federal Register Notice dated 11/06/98 for oryzalin and the Oryzalin RED dated 01/27/95.

Acute toxicity information for Surflan 0.25 A.S.:

Route of Exposure	Acute Toxicity Category by Route of Exposure	
	Technical Oryzalin	Surflan 0.25 A.S.
Oral LD50	IV	IV
Dermal LD50	IV	IV
Dermal Irritation	IV	IV
Ocular Irritation	IV	III (<48 hr)
Inhalation	IV	IV (>6.93 mg/L)
Dermal Sensitization	negative	Sensitizer

Changes by Amendment Per RED Requirements:

- Precautionary Statements:** (1) revised format of KOROC statement, signal word and Spanish advisory on base label per recent guidance from EPA labeling team; (2) revised statement of hazard and precautionary measures text, revised PPE for applicators and other handlers, added User Safety Recommendations section, and revised First Aid in accordance with EPA letter dated Aug 17, 1999; (3) added "toxic to fish" statement to Environmental Hazards section.
- Directions for Use:** (1) added prohibition against aerial application; (2) added application and early entry restrictions; (3) added restriction on grazing or feeding forage from treated areas; (4) revised application rate limitations (rate range, minimum time between applications, and total allowable use rate per year), and (4) added specific use directions for "Noncropland Areas" in accordance with EPA letter dated Aug 17, 1999.

Other Changes:

Directions for Use

- Reorganized "General Information" section to include only information applicable to all labeled uses in accordance with EPA letter dated Aug 17, 1999.

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(Container label)

(Logo) Dow AgroSciences LLC

Surflan* 0.25 A.S.

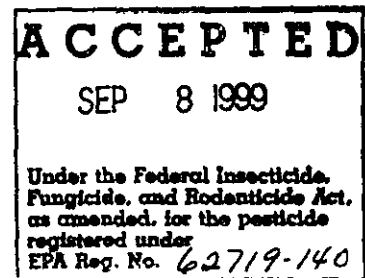
A Selective Preemergence Surface-Applied Herbicide for Use in Established Ornamentals and Southern Turfgrasses for the Control of Annual Grasses and Many Broadleaf Weeds in:

- Container Grown Ornamental Plants
- Ground Covers
- Noncropland Areas
- Ornamental Trees
- Ornamental Plants (Including Around Highway and Industrial Sites)
- Ornamental Woody Shrubs
- Southern Turfgrasses (Including Bahiagrass, Bermudagrass, Centipedegrass, St. Augustinegrass, Tall Fescue and Zoysiagrass)

Active Ingredient:

oryzalin: 3,5-dinitro- <i>N,N</i> -dipropylsulfanilamide	3%
Inert Ingredients	97%
Total	100%

Contains 0.25 pounds active ingredient per gallon.



Avoid Freezing--Store Above 40°F

Keep Out of Reach of Children

CAUTION

Precautionary Statements

Hazards to Humans and Domestic Animals

Causes Moderate Eye Irritation • May Cause Skin Allergies To Develop

Avoid contact with skin, eyes or clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Shoes plus socks
- In addition, mixers and loaders must also wear a chemical-resistant apron.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:

Users should:

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

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Do not contaminate water when disposing of equipment wash waters or rinsate.

See label booklet for Directions for Use, Including Storage and Disposal.

Notice: Read entire label. Use only according to label directions. **Before buying this product, read Limited Warranty and Disclaimer Section elsewhere on this label.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

Do Not Ship or Store with Food, Feeds, Drugs, or Clothing.

EPA Reg. No. 62719-140

EPA Est. _____

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Herbicide

Net Contents - _____

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(Label Booklet)

(Logo) Dow AgroSciences LLC

Surflan* 0.25 A.S.

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:

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Herbicide

Net Contents - _____

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This pesticide is toxic to fish. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Do not contaminate water when disposing of equipment wash waters or rinsate.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all directions for use carefully before applying.

Not for use on plants grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior plantscapes, ornamental gardens or parks, or on golf courses or lawns and grounds.

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.

Storage and Disposal

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

General Information

Surflan* 0.25 A.S. is a preemergence surface-applied herbicide for the control of annual grasses and many broadleaf weeds.

Soil Preparation: Surflan 0.25 A.S. 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.

Application Restrictions:

- Keep all persons, children, and pets out of treated area until sprays have dried.
- Do not graze or feed forage from treated areas to livestock.
- Do not aerially apply this product.
- **Chemigation:** Do not apply this product through any type of irrigation system.

Ornamentals

General Use Precautions and Restrictions for Ornamentals

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

Do not apply Surflan 0.25 A.S. in ornamental plantings where the likelihood of runoff onto lawn areas containing dichondra or cool-season turfgrass species exists as severe injury or death may occur. Poor

weed control may result if directions are not followed. Over application 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 0.25 A.S. or injury may occur.

Grasses Controlled by Surflan 0.25 A.S.

Common Name	Scientific Name
barley, little	<i>Hordeum pusillum</i>
barnyardgrass (Watergrass)	<i>Echinochloa crusgalli</i>
bluegrass, annual	<i>Poa annua</i>
brachiaria (signalgrass)	<i>Brachiaria</i> spp.
crabgrasses	<i>Digitaria</i> spp.
(large crabgrass)	
(smooth crabgrass)	
crowfootgrass	<i>Dactyloctenium aegyptium</i>
cupgrass, southwestern	<i>Eriochloa gracilis</i>
foxtails	<i>Setaria</i> spp.
(bottlegrass)	
(bristlegrass)	
(giant foxtail)	
(green foxtail)	
(pigeongrass)	
(robust foxtail)	
(yellow foxtail)	
goosegrass (Silver crabgrass)	<i>Eleusine indica</i>
johnsongrass (Seedling 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 0.25 A.S.

Common Name	Scientific Name
bittercress	<i>Cardamine</i> spp.
carpetweed	<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>
henbit	<i>Lamium amplexicaule</i>
knotweed, prostrate	<i>Polygonum aviculare</i>

lambsquarters	<i>Chenopodium album</i>
pigweeds	<i>Amaranthus spp.</i>
(carelessweed)	
(prostrate pigweed)	
(redroot)	
(rough pigweed)	
(spring pigweed)	
(tumble pigweed)	
puncturevine	<i>Tribulus terrestris</i>
purslane, common	<i>Portulaca oleracea</i>
pusley, Florida	<i>Richardia scabra</i>
(Florida purslane)	
(Mexican clover)	
(pusley)	
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.

Common Name
 annual sowthistle
 black mustard
 black nightshade
 climbing milkweed
 common mallow
 common ragweed
 horseweed
 ladythumb

Common Name
 morningglory
 prickly lettuce
 smartweed
 spotted spurge
 teaweed (prickly sida)
 velvetleaf
 volunteer wheat
 wild mustard

Surflan 0.25 A.S. will not control established weeds.

Mixing Directions

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 0.25 A.S., continue agitation and finish filling the tank. Maintain agitation from mixing through application.

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 0.25 A.S. as a directed spray to the soil surface or as an overtop spray. Apply Surflan 0.25 A.S. 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 0.25 A.S. will remain stable on the soil surface up to 21 days. In the absence of timely rainfall, irrigation can be used to move Surflan 0.25 A.S. into soil surface. A one-half (1/2) inch rain or its equivalent in sprinkler irrigation is necessary to activate Surflan 0.25 A.S. 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 0.25 A.S. in the weed germination zone. Shallow cultivation (1 to 2 inches) will not reduce herbicidal effectiveness. If Surflan 0.25 A.S. is not activated by rainfall, irrigation or cultivation within 21 days of application, erratic weed control may result.

Recommended Species

Surflan 0.25 A.S. may be Used on the Following Ornamental Plant Species:

Common Name	Scientific Name
abelia, glossy	<i>Abelia grandiflora</i>
apple	<i>Malus</i> spp.
arborvitae, Giant	<i>Thuja plicata</i>
arborvitae, Oriental	<i>Platycladus orientalis</i>
azalea	<i>Rhododendron</i> spp.
barberry, Japanese	<i>Berberis thunbergii</i>
begonia	<i>Begonia semper florans</i>
bird of paradise	<i>Strelitzia reginae</i>
bottlebrush, lemon	<i>Callistemon citrinus</i>
boxwood, common	<i>Buxus sempervirens</i>
boxwood, Japanese	<i>Buxus microphylla japonica</i>
brush cherry	<i>Syzygium paniculata</i>
California laurel	<i>Umbellularia californica</i>
cape marigold	<i>Dimorphotheca</i> spp.
cherry, Mahaleb	<i>Prunus mahaleb</i>
cherry, sweet	<i>Prunus avium</i>
chrysanthemum, florists	<i>Chrysanthemum morifolium</i>
cleyera, Japanese	<i>Cleyera japonica</i>
cotoneaster, bearberry	<i>Cotoneaster dammeri</i>
cotoneaster, brightbead	<i>Cotoneaster buxifolius</i>
cotoneaster, cranberry	<i>Cotoneaster apiculatus</i>
cotoneaster, Pyrenees	<i>Cotoneaster congestus</i>
cotoneaster, rock	<i>Cotoneaster horizontalis</i>
cotoneaster, rockspray	<i>Cotoneaster microphyllus</i>
coyotebush, dwarf	<i>Baccharis pilularis</i>
crape Myrtle, common	<i>Lagerstroemia indica</i>
cryptomeria, Japanese	<i>Cryptomeria japonica</i>
cypress, Italian	<i>Cupressus sempervirens</i>
daisy, trailing African	<i>Osteospermum fruticosum</i>
douglasfir	<i>Pseudotsuga taxifolia</i>
eastercactus	<i>Rhipsalidopsis gaertneri</i>
escallonia	<i>Escallonia exoniensis</i>
eucalyptus, mealy	<i>Eucalyptus cinerea</i>
eucalyptus, narrow-leaved	<i>Eucalyptus nicholii</i>
eucalyptus, red	<i>Eucalyptus sideroxylon</i>
euonymus, evergreen	<i>Euonymus japonica</i>

euonymus, stringybark	<i>Euonymus fortunei</i>
euonymus, winged	<i>Euonymus alata</i>
falsecypress, Lawson	<i>Chamaecyparis lawsoniana</i>
fatshedera	<i>Fatschedera lizei</i>
fir, alpine	<i>Abies lasiocarpa</i>
fir, balsam	<i>Abies balsamea</i>
fir, fraser	<i>Abies fraseri</i>
fir, grand	<i>Abies grandis</i>
fir, Vietch	<i>Abies veitchi</i>
fir, white	<i>Abies concolor</i>
firethorn	<i>Pyracantha, fortuneana</i>
firethorn, formosa	<i>Pyracantha skoidzumi</i>
firethorn, scarlet	<i>Pyracantha coccinea</i>
forsythia, border	<i>Forsythia intermedia</i>
gazania, trailing	<i>Gazania rigens leucolaena</i>
geranium (Pelargonium)	<i>Pelargonium hortorum</i>
ginkgo	<i>Ginkgo biloba</i>
hibiscus, Chinese	<i>Hibiscus rosa-sinesis</i>
holly, Chinese	<i>Ilex cornuta</i>
holly, English	<i>Ilex aquifolium</i>
holly, Japanese	<i>Ilex crenata</i>
honeysuckle, Japanese	<i>Lonicera japonica</i>
hopseedbush, clammy	<i>Dodonaea viscosa</i>
ice plant	<i>Mesembryanthemum crystallinum</i>
(See precautions for ornamental plantings)	
ice plant, largeleaf	<i>Carpobrutus edulis</i>
(See precautions for ornamental plantings)	
ivy, Algerian	<i>Hedera canariensis</i>
ivy, English	<i>Hedera helix</i>
jerseytea, redroot	<i>Ceanothus americanus</i>
juniper	<i>Juniperus spp.</i>
laurelcherry, Carolina	<i>Prunus caroliniana</i>
laurelcherry, English	<i>Prunus laurocerasus</i>
leucothoe, coast	<i>Leucothoe axillaris</i>
leucothoe, drooping	<i>Leucothoe fontanesiana</i>
lilac, common	<i>Syringa vulgaris</i>
lily, plantain	<i>Hosta spp.</i>
lilyturf, bigblue	<i>Liriope muscari</i>
lily-of-the-Nile	<i>Agapanthus africanus</i>
linden, little leaf	<i>Tilia cordata</i>
magnolia, Southern	<i>Magnolia grandiflora</i>
manzanita, Stanford	<i>Arctostaphylos stanfordiana</i>
maple	<i>Acer spp.</i>
marigold	<i>Tagetes spp.</i>
mockorange	<i>Philadelphus spp.</i>
moss, rose	<i>Portulaca grandiflora</i>
myoporum, prostrate	<i>Myoporum parvifolium</i>
myrtle, true	<i>Myrtus communis</i>
oak <i>Quercus</i> spp.	
oleander	<i>Nerium oleander</i>
orange, ornamental	<i>Citrus spp.</i>
oregon grape	<i>Mahonia aquifolium</i>
osmanthus, holly-leaf	<i>Osmanthus heterophyllus</i>

palo verde, blue	<i>Cercidium floridum</i>
pansy	<i>Viola wittrockiana</i>
pear	<i>Pyrus communis</i>
pecan, ornamental	<i>Carya spp.</i>
periwinkle, bigleaf	<i>Vinca major</i>
periwinkle, dwarf	<i>Vinca minor</i>
petunia	<i>Petunia spp.</i>
photinia	<i>Photinia fraseri</i>
pine	<i>Pinus spp.</i>
pittosporum	<i>Pittosporum spp.</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>
protea	<i>Protea neriifolia</i>
ranunculus, Persian	<i>Ranunculus asiaticus</i>
redbud	<i>Cercis canadensis</i>
redcedar, eastern	<i>Juniperus virginiana</i>
redcedar, western	<i>Thuja plicata</i>
redwood, coast	<i>Sequoia sempervirens</i>
raphiolepis (India hawthorn)	<i>Raphiolepis indica</i>
rhododendron	<i>Rhododendron spp.</i>
rose	<i>Rosa spp.</i>
rose-of-Sharon (Shrubalthea)	<i>Hibiscus syriacus</i>
Russian olive	<i>Elaeagnus angustifolia</i>
sage	<i>Salvia spp.</i>
shrimp plant	<i>Justicia brandegeana</i>
snapdragon	<i>Antirrhinum majus</i>
sotol, desert spoon	<i>Dasyliion wheeleri</i>
spruce, black	<i>Picea mariana</i>
spruce, Colorado	<i>Picea pungens</i>
spruce, Englemann	<i>Picea englemanni</i>
spruce, Norway	<i>Picea abies</i>
spruce, white	<i>Picea glauca</i>
star jasmine, Chinese	<i>Trachelospermum jasminoides</i>
stonecrop	<i>Sedum brevifolium</i>
sumac, African	<i>Rhus lancea</i>
sweetgum, American	<i>Liquidambar styraciflua</i>
sweet William	<i>Dianthus barbatus</i>
tobira	<i>Pittosporum tobira</i>
trumpet vine, violet	<i>Clytostoma callistegioides</i>
viburnum, Laurustinus	<i>Viburnum tinus</i>
virburnum, Sandankwa	<i>Virburnum suspensum</i>
weigela, oldfashioned	<i>Weigela florida</i>
wintercreeper	<i>Euonymus fortunei</i>
xylosma, Japanese	<i>Xylosma congestum</i>
yarrow	<i>Achillea spp.</i>
yaupon	<i>Ilex vomitoria</i>
yew <i>Taxus media</i>	
yew, Japanese	<i>Taxus cuspidata</i>
yewpine	<i>Podocarpus macrophyllus</i>
yucca, pendulous	<i>Yucca recurvifolia</i>
yucca, soaptree	<i>Yucca elata</i>
zinnia, common	<i>Zinnea elegans</i>

Surflan 0.25 A.S. may be Used on the Following Container-Grown Plant Species:

Common Name	Scientific Name
andromeda	<i>Pieris japonica</i>
arborvitae, American	<i>Thuja occidentalis</i>
arborvitae, Oriental	<i>Platycladus orientalis</i>
astilbe/false spirea	<i>Astilbe chinensis</i> and <i>A. chinensis</i> hybrids
barberry, Japanese	<i>Berberis thunbergii</i>
bellflower	<i>Campanula elatines</i>
blazing star	<i>Liatris spicata</i>
bleeding heart	<i>Dicentra spectabilis</i>
bottlebrush, lemon	<i>Callistemon citrinus</i>
boxwood, common	<i>Buxus sempervirens</i>
brush cherry	<i>Syzygium paniculata</i>
cleyera, Japanese	<i>Cleyera japonica</i>
cotoneaster, bearberry	<i>Cotoneaster dammeri</i>
cotoneaster, cranberry	<i>Cotoneaster apiculatus</i>
cotoneaster, parney	<i>Cotoneaster lacteus</i>
cotoneaster, rock	<i>Cotoneaster horizontalis</i>
crape Myrtle, common	<i>Lagerstroemia indica</i>
cryptomeria, Japanese	<i>Cryptomeria japonica</i>
cypress, Arizona	<i>Cupressus arizonica</i> (<i>glabra</i>)
cypress, Italian	<i>Cupressus sempervirens</i>
daylily	<i>Hemerocallis</i> spp.
dogwood, kousa	<i>Cornus kousa</i>
eastercactus	<i>Rhipsalidopsis gaertneri</i>
escallonia	<i>Escallonia exoniensis</i>
euonymus, evergreen	<i>Euonymus japonica</i>
euonymus, stringybark	<i>Euonymus fortunei</i>
fatshedera	<i>Fatshedera lizei</i>
firethorn	<i>Pyracantha, fortuneana</i>
firethorn, formosa	<i>Pyracantha skoidzumi</i>
firethorn, scarlet	<i>Pyracantha coccinea</i>
gardenia	<i>Gardenia jasminoides</i>
ginkgo	<i>Ginkgo biloba</i>
holly, Chinese	<i>Ilex cornuta</i>
holly, Japanese	<i>Ilex crenata</i>
jerseytea, redroot	<i>Ceanothus americanus</i>
juniper	<i>Juniperus</i> spp.
kumquat	<i>Fortunella</i> spp.
lilac, common	<i>Syringa vulgaris</i>
lilyturf, bigblue	<i>Liriope muscari</i>
lily-of-the-Nile	<i>Agapanthus africanus</i>
linden, little leaf	<i>Tilia cordata</i>
mockorange	<i>Philadelphus</i> spp.
myrtle, true	<i>Myrtus communis</i>
oak <i>Quercus</i> spp.	
oleander	<i>Nerium oleander</i>
orange, ornamental	<i>Citrus</i> spp.
pecan, ornamental	<i>Carya</i> spp.
photinia	<i>Photinia fraseri</i>
pine	<i>Pinus</i> spp.

pittosporum	<i>Pittosporum</i> spp.
privet, amur	<i>Ligustrum amurense</i>
privet, glossy	<i>Ligustrum lucidum</i>
privet, golden	<i>Ligustrum vicaryi</i>
privet, Japanese	<i>Ligustrum japonicum</i>
redbud	<i>Cercis canadensis</i>
raphiolepis (India hawthorn)	<i>Raphiolepis indica</i>
rhododendron	<i>Rhododendron</i> spp.
russian olive	<i>Elaeagnus angustifolia</i>
shrimp plant	<i>Justicia brandegeana</i>
spruce, Colorado	<i>Picea pungens</i>
sumac, African	<i>Rhus lancea</i>
sweetgum, American	<i>Liquidambar styraciflua</i>
trumpet vine, violet	<i>Clytostoma callistegioides</i>
viburnum, Laurustinus	<i>Viburnum tinus</i>
wintercreeper	<i>Euonymus fortunei</i>
yaupon	<i>Ilex vomitoria</i>
yucca, soaptree	<i>Yucca elata</i>

Precaution

Ice Plant: When establishing unrooted ice plant on coarse soils in landscape plantings, use only the 1.5 pint of Surflan 0.25 A.S. or crop injury may occur. After the ice plant is well established, a second application may be made.

Broadcast Application Rates

Labeled Use Site	Length of Control	Surflan 0.25 A.S. (pt/1000 sq ft)	Minimum Time Between Applications (months)	Total Amount Allowed Per Year (pt/1000 sq ft)
Landscape ornamentals	2 - 4 months	1.1 to 1.5	2	5.9
	3 - 6 months	2.2	4	8.8
	4 - 8 months	3	4	8.8
Field-grown and container-grown ornamentals	2 - 4 months	1.5	3	5.9
	3 - 6 months	2.2	3	6.6
	4 - 8 months	3	3	8.8

Southern Turfgrass Areas

Surflan 0.25 A.S. 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 0.25 A.S. works by controlling weeds as the seeds germinate.

Surflan 0.25 A.S. will not harm nearby established ornamental trees and shrubs. Do not apply Surflan 0.25 A.S. on golf course putting greens.

General Use Precautions and Restrictions for Southern Turfgrass

Surflan 0.25 A.S. will not control established weeds.

Surflan 0.25 A.S. may injure turf that is under weakened conditions due to degree of establishment or winter climatic conditions. Apply Surflan 0.25 A.S. to healthy, established turf only.

Use Surflan 0.25 A.S. only as a part of a total turf management program that includes good fertilization practices.

Surflan 0.25 A.S. should not be applied in the spring or summer to tall fescue turfgrass reseeded the previous fall. In bermudagrass areas that have been overseeded with winter grasses, a spring application of Surflan 0.25 A.S. will thin the overseeded grasses.

Surflan 0.25 A.S. should not be applied to newly sprigged areas of bermudagrass, St. Augustinegrass, centipedegrass or zoysiagrass until these turfs are well established.

Surflan 0.25 A.S. should not be applied to newly hydromulched areas of bermudagrass until these areas are well established.

Do not spray Surflan 0.25 A.S. in combination with atrazine on turf.

Areas planted with bermudagrass variety "Sun Turf" in Northern Oklahoma have shown sensitivity to Surflan 0.25 A.S. treatments.

Do not apply Surflan 0.25 A.S. on golf course putting greens.

Grasses Controlled by Surflan 0.25 A.S.

Summer Annuals

Common Name	Scientific Name
barley, little	<i>Hordeum pusillum</i>
barnyardgrass (watergrass)	<i>Echinochloa crus-galli</i>
bluegrass, annual (poa)	<i>Poa annua</i>
brachiaria (signalgrass)	<i>Brachiaria</i> spp.
browntop panicum	<i>Panicum fasciculatum</i>
crabgrass	<i>Digitaria</i> spp.
(large crabgrass)	
(smooth crabgrass)	
crowfootgrass	<i>Dactyloctenium aegyptium</i>
cupgrass	<i>Eriochloa gracilis</i>
downy brome	<i>Bromus tectorum</i>
fall panicum	<i>Panicum dichotomiflorum</i>
(spreading panicgrass)	
foxtails	<i>Setaria</i> spp.
(bottlegrass)	
(bristlegrass)	
(giant foxtail)	
(green foxtail)	
(pigeongrass)	
(robust foxtail)	
(yellow foxtail)	
guineagrass	<i>Panicum maximum</i>
(narrowleaf panicum)	
johnsongrass (seedling 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>
ryegrass, annual (Italian)	<i>Lolium multiflorum</i>
sandbur, field	<i>Cenchrus incertus</i>
sprangletop, red	<i>Leptochloa filiformis</i>
Texas panicum (buffalograss)	<i>Panicum texanum</i>
(coloradograss)	
witchgrass	<i>Panicum capillare</i>

Winter Annuals

Common Name	Scientific Name
bluegrass, annual	<i>Poa annua</i>

Broadleaf Weeds Controlled by Surflan 0.25 A.S.

Summer Annuals

Common Name	Scientific Name
carpetweed	<i>Mollugo verticillata</i>
knotweed, prostrate	<i>Polygonum aviculare</i>
purslane, common	<i>Portulaca oleracea</i>

Winter Annuals

Common Name	Scientific Name
chickweed, common	<i>Stellaria media</i>
henbit	<i>Lamium amplexicaule</i>

Broadleaf Weeds Partially Controlled by Surflan 0.25 A.S.

Common Name	Scientific Name
groundsel, common	<i>Senecio vulgaris</i>
spurge, prostrate	<i>Euphorbia humistrata</i>
woodsorrel, yellow	<i>Oxalis stricta</i>

Surflan 0.25 A.S. will not control established weeds.

General Use Directions

Rates, Frequency and Timing of Application

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

Apply Surflan 0.25 A.S. 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 Surflan 0.25 A.S. into the soil surface. Any cultural practices that disturb the soil, such as aerification or verticutting, should be done prior to application of Surflan 0.25 A.S.

Application Rates, Number of Applications Allowed and Minimum Interval between Applications:

Warm Season Turf Areas	Surflan 0.25 A.S.		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (pt/1000 sq ft)
	(pt/1000 sq ft)	(fl oz/1000 sq ft)		
All, except Florida	1.1 – 1.5	18 - 24	3	4.4
Florida	1.1	18	3	3.3

Application Directions

Surflan 0.25 A.S. 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. Do not apply more than 1.1 pt (18 fl oz)/1000 sq ft per application in the state of Florida.

1. Spring Germinating Summer Annual Grasses and Broadleaf Weeds

For preemergence control, apply 1.5 pints (24 ounces) Surflan 0.25 A.S. 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 Surflan 0.25 A.S.:

Amount Per 100 sq. ft.	Amount Per 500 sq. ft.	Amount Per 1000 sq. ft.
2½ oz	12½ oz	24 oz

2. Annual Bluegrass (*Poa Annua*) and Broadleaf 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 Surflan 0.25 A.S. 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 Surflan 0.25 A.S.:

Amount Per 100 sq. ft.	Amount Per 500 sq. ft.	Amount Per 1000 sq. ft.
1¾ oz	8¾ oz	18 oz

Application Equipment

Apply Surflan 0.25 A.S. 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.

Surflan 0.25 A.S. 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 Surflan 0.25 A.S.. When reseeding, it is essential that proper cultural practices such as soil cultivation, irrigation and fertilization be followed. For satisfactory reseeding results after using Surflan 0.25 A.S., 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.

Noncropland Areas

Surflan 0.25 A.S. plus Roundup and many other labeled herbicides may be used to control undesirable vegetation in noncropland areas such as roadsides, rights-of-way, etc. When applied according to use directions, these tank mixes will provide control of susceptible weed species listed on the respective product labels. Refer to tank mix product labels for specific use directions, precautions, and limitations before use.

Broadcast Application Rates

Labeled Use Site	Length of Control	Surflan 0.25 A.S.	Minimum Time Between Applications (months)	Total Amount Allowed Per Year (pt/1000 sq ft)
		(pt/1000 sq ft)		
Noncropland	2 - 4 months	1.5	2	4.4
	6 - 8 months	3	4	8.8
	8 - 12 months	4.4	8	8.8

Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. All such risks shall be assumed by Buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. In no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the "Warranty Disclaimer" above and this "Limitation of Remedies" cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the "Warranty Disclaimer" or this "Limitation of Remedies" in any manner.

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