

Specimen Label



Surflan*

A.S.

Specialty Herbicide

*Trademark of Dow AgroSciences LLC

A selective preemergence surface-applied herbicide for control of annual grasses and many broadleaf weeds in:

- Landscape Ornamentals
- Container Grown Ornamentals
- Field Grown Ornamentals
- Drainage Areas Under Shadehouse Benches
- Ornamental Bulbs
- Ground Covers/Perennials
- Christmas Tree Plantations
- Non-bearing fruit and nut trees and non-bearing vineyards
- Noncropland and Industrial Sites
- Established Warm Season Turf (including Bahiagrass, Bermudagrass, Buffalograss, Centipedegrass, St. Augustinegrass and Zoysiagrass)
- Tall Fescue (warm season areas)

Active Ingredient:

oryzalin: 3,5-dinitro-*N*⁴*N*⁴-

dipropylsulfanilamide 40.4%

Inert Ingredients 59.6%

Total 100.0%

Contains 4.0 pounds of active ingredient per gallon.

EPA Reg. No. 62719-113

Keep Out of Reach of Children

CAUTION

PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Precautionary Statements

Hazards to Humans and Domestic Animals

Causes Eye Irritation • Prolonged or frequently repeated contact may cause allergic reactions in some individuals

Avoid contact with 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
- Mixers and loaders must wear a chemical-resistant apron in addition to other PPE.

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

Engineering Controls Statements

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

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

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.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spills.

Notice: Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" 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.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Shake Well Before Using.

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.

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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours. **Exception:** If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

Workers may enter treated areas without required PPE during the reentry interval following 1/2 to 1 inch of rainfall or irrigation, if they are performing tasks that do not involve contact with the soil subsurface; otherwise, 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
- Chemical-resistant gloves
- 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.

Entry Restrictions for Non-WPS Uses: Keep all persons, children and pets out of treated area until sprays have dried.

Storage and Disposal

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

Storage: 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 by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

General Information

Surflan* A.S. herbicide is a preemergence surface-applied product for the control of many annual grasses and broadleaf weeds in ornamental plantings, bulbs, ground covers/perennials, established warm-season turfgrass, Christmas tree plantations, non-bearing trees and vines, and noncropland and industrial sites.

Surflan A.S. is orange in color and may cause temporary discoloration of sprayed surfaces. If this discoloration is undesirable, it may be altered by using a commercially available colorant such as Blazon or removed by spraying surface with water or washing with an industrial cleaner immediately after application. Surflan A.S. may also be applied with mulch colorants, such as Mulch Magic or Nu-Mulch.

Treatment of Plant Species Not Listed on the Label for Surflan A.S.

Users who wish to use Surflan A.S. on plant species not recommended on this label may determine the suitability for use by treating a small number of such plants at a recommended rate. Prior to treatment of larger areas, the treated plants should be observed for any sign of herbicidal injury during 30-60 days of normal growing conditions to determine if the treatment is non-injurious to the target plant species. The user assumes responsibility for any plant damage or other liability resulting from use of Surflan A.S. on plant species not recommended on this label.

Aerial Application: Do not aerially apply this product.

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

Do not graze or feed forage from treated areas to livestock.

Precaution: Avoid spray drift to non-target areas when applying Surflan A.S. Spray drift may result in reduced emergence of non-target plants adjacent to the treated area. Poor weed control may result if directions are not followed. Over-application may result in crop injury or excessive soil residue.

Application

Soil Preparation

Surflan A.S. controls weeds growing from seed. Surflan A.S. will not control emerged weeds. Surflan A.S. does not control established weeds, weeds growing from stolens, rhizomes, or root pieces. Therefore, areas to be treated should be free of emerged weeds. Weed residues, prunings, and trash should be thoroughly mixed into the soil or removed prior to treatment. In field applications, the soil should be in good till and free of clods at the time of application.

Ground Application: Apply Surflan A.S. as a directed spray to the soil surface or over the top of plants. Use only a properly calibrated, low-pressure, herbicide sprayer that will apply the spray uniformly. Use screens no finer than 50 mesh in nozzles and in-line strainers. Apply the appropriate rate of Surflan A.S., as outlined in "Approved Uses" section of this label. In all cases, use sufficient water volume to obtain uniform coverage and deliver the desired rate of Surflan A.S. to the treated area. The volume of water used is not critical, as long as the desired rate of Surflan A.S. is delivered uniformly across the area treated. When calibrating, determine the volume of water delivered by the sprayer to a given area (1,000 sq ft, 1 acre, etc.). Then mix the desired rate of Surflan A.S. in the amount of water required to cover the entire area to be treated. 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 continuous agitation from mixing through application. Avoid spray pattern skips and overlaps that may result in incomplete coverage or over-application.

Hand Held or Backpack Sprayer Application: The amount of water used to apply Surflan A.S. herbicide is not critical, but should be sufficient for uniform coverage of the target area. Calibrate by determining the volume of water required to treat 1000 square feet. Use this calibration volume to determine the amount of water and Surflan A.S. herbicide needed to treat the target area (see the following calibration example). **Note:** Sprayer calibration (volume of spray needed to treat 1,000 square feet) will vary with each individual operator.

Steps in Calibration:

1. Mark an area of 1,000 square feet (i.e. 20 by 50 feet, or 25 by 40 feet).
2. Place the sprayer on a level surface and add water noting the final level of water in the spray tank.
3. Spray the marked area with a sufficient volume of water to provide uniform coverage. Refill the sprayer to the same level as before measuring the amount of water added. The measured water added to the sprayer is the volume needed to cover 1,000 square feet.
4. Determine the application rate (fl oz/1000 sq ft) for Surflan A.S. from the "Approved Uses" section of this label.
5. To each volume of water used, as measured in step 3, add the amount of Surflan A.S. as determined in step 4.

Example: If the sprayer used 2 gallons of water to cover 1,000 square feet and the desired application rate of Surflan A.S. is 3 fluid oz/1,000 square feet, then you would add 3 fluid ounces of Surflan A.S. to every 2 gallons of water to be used.

Mixing Directions

Shake Well Before Using

Precaution: Do not allow the spray mixture to siphon back into water source.

Surflan A.S. - Alone

Make sure spray tank is clean and use only clean water. Fill spray tank 1/2 - 3/4 full. Start agitation and add the required amount of Surflan A.S. Continue agitation and finish filling the spray tank. Maintain continuous agitation until application is completed.

Surflan A.S. - Tank Mix Combinations

Prior to mixing, read and carefully follow all label instructions and precautions for each product added to the tank mixture. Vigorous, continuous agitation is required for all tank mixes of Surflan A.S. Sparger pipe agitators generally provide the best agitation in spray tanks.

Mixing Order: Fill the tank 3/4 full with clean water. Start agitation and add different formulation types in the order indicated below, allowing time for complete mixing and dispersion after addition of each product. Allow extra mixing and dispersion time for dry flowable products.

Add different formulation types in the following order: dry flowables (DF); wettable powders (WP); Surflan A.S. and other aqueous suspensions (AS), flowables (F), and liquids (L); solutions (S); and emulsifiable concentrates (EC).

Continue agitation and finish filling the spray tank with clean water. Maintain agitation until application is completed. If spraying and agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be completely resuspended before spraying is continued. A sparger agitator is particularly useful for this purpose.

Premixing: When tank mixing, initial mixing and dispersion of certain dry flowable or wettable powder products may be improved by premixing with water (slurrying). Adding the slurried material to the spray tank through a wetting screen of 20 or 35 mesh will help assure good initial dispersion.

Equipment Cleaning

If a buildup of material occurs on the walls of the spray tank, it should be removed between fillings by washing with soap and water and rinsing thoroughly. Tanks, lines, screens, and nozzles should be cleaned thoroughly after each use.

Activation and Cultivation

Surflan A.S. will remain stable on the soil surface up to 21 days following application. In the absence of timely rainfall, irrigation can be used to activate Surflan A.S. A minimum of one-half (1/2) inch of rain or its equivalent in sprinkler irrigation is necessary to activate Surflan A.S.. If weeds begin to emerge due to lack of rainfall or irrigation, shallow cultivate 1-2 inches deep to destroy existing weeds, or remove them by hand. Shallow cultivation to a depth of 1-2 inches will enhance herbicidal effectiveness. Erratic weed control may result if Surflan A.S. is not activated by rainfall, irrigation, or cultivation within 21 days of application, or existing weeds have not been removed.

Weeds Controlled by Surflan A.S.

Annual Grasses:

Common Name	Scientific Name
barley, little	<i>Hordeum pusillum</i>
barnyardgrass (watergrass)	<i>Echinochloa crus-galli</i>
bluegrass, annual	<i>Poa annua</i>
crabgrass, large	<i>Digitaria sanguinalis</i>
crabgrass, smooth	<i>Digitaria ischaemum</i>
crowfootgrass	<i>Dactyloctenium aegyptium</i>
cupgrass, southwestern	<i>Eriochloa gracilis</i>
foxtail, bristlegrass	<i>Setaria magna</i>
foxtail, giant	<i>Setaria faberi</i>
foxtail, green (pigeongrass)	<i>Setaria viridis</i>
foxtail, robust	<i>Setaria robusta</i>

foxtail, yellow
goosegrass
(silver crabgrass)
Johnsongrass
(seedling only)
junglerice
lovegrass, Mexican
lovegrass, orcutt
oat, wild
panicum, browntop
panicum, fall
(spreading panicgrass)
panicum, Texas
(buffalograss)
(Coloradograss)
ryegrass, Italian
signalgrass (Brachiaria)
sprangletop, red
witchgrass

Setaria glauca
Eleusine indica

Sorghum halepense

Echinochloa colonum
Eragrostis mexicana
Eragrostis orcuttiana
Avena fatua
Panicum fasciculatum
Panicum
dichotomiflorum
Panicum texanum

Cenchrus incertus
Brachiaria spp.
Leptochloa filiformis
Panicum capillare

mustard, wild
nightshade, black
ragweed, common
smartweed

sowthistle, annual
spurge, spotted
teaweed (prickly sida)
velvetleaf
wheat, volunteer

Brassica kaber
Solanum nigrum
Ambrosia artemisiifolia
Polygonum
pensylvanicum
Sonchus oleraceus
Euphorbia maculata
Sida spinosa
Abutilon theophrasti
Triticum spp.

Approved Uses

Ornamental Plantings

Surflan A.S. is recommended for use on certain landscape container- and field-grown established ornamental plants including: trees, shrubs, ground covers/perennials, flowers, non-bearing fruit and nut trees, non-bearing vineyards; and in the production of ornamental bulbs (See "Ornamental Bulbs" section for special use directions).

Broadcast Application Rates

Labeled Use Site	Length of Control	Surflan A.S.		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
		(qt/acre)	(fl oz/1000 sq ft)		
Landscape Ornamentals	2 - 4 months	2	1.5	2	8
	3 - 6 months	3	2.2	4	12
	4 - 8 months	4	3	4	12
Field-grown and container-grown ornamentals	2 - 4 months	2	1.5	3	8
	3 - 6 months	3	2.2	3	9
	4 - 8 months	4	3	3	12

Tank Mix Combinations

Tank mix combinations of Surflan A.S. plus Roundup, and many other labeled herbicides may be used to control undesirable vegetation in ornamental areas. Surflan A.S. may also be tank mixed with Gallery* herbicide and applied preemergence to broaden the spectrum of broadleaf weed control in ornamental areas. Applied as directed, these tank mixes of Surflan A.S. will provide control of susceptible weed species listed on the respective labels. Refer to tank mix product labels for specific use directions, precautions, and limitations before use.

Surflan A.S. Plus Roundup: Tank mix combinations of Surflan A.S. plus Roundup are recommended to control existing undesirable vegetation. Applied as directed, Surflan A.S. plus Roundup will provide postemergence control of susceptible weed species listed on the label for Roundup and residual preemergence control of susceptible weed species listed on the label for Surflan A.S. Refer to the label for Roundup for specific use directions, precautions, and limitations before use.

Broadleaf Weeds:

Common Name

bittercress
carpetweed
chickweed, common
fiddleneck, coast
filaree, redstem
filaree, whitestem
groundsel, common
henbit
knotweed, prostrate
lambsquartars
pigweed, prostrate
pigweed, redroot
pigweed, spring
pigweed, tumble
puncturevine
purslane, common
pusley, Florida
(Florida purslane)
(Mexican clover)
(pusley)
rocket, London
rockpurslane, desert
shepherdspurge
spurge, prostrate
woodsorrel, yellow

Scientific Name

Cardamine oligosperma
Mollugo verticillata
Stellaria media
Amsinckia intermedia
Erodium cicutarium
Erodium moschatum
Senecio vulgaris
Lamium amplexicaule
Polygonum aviculare
Chenopodium album
Amaranthus blitoides
Amaranthus retroflexus
Amaranthus hybridus
Amaranthus albus
Tribulus terrestris
Portulaca oleracea
Richardia scabra

Sisymbrium irio
Calandrinia ciliata
Capsella bursa-pastoris
Euphorbia humistrata
Oxalis stricta

Weeds Suppressed by Surflan A.S.

Control 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, and amount and timing of soil moisture:

Common Name

horseweed
ladysthumb
lettuce, prickly
mallow, common
milkweed, climbing

morningglory
mustard, black

Scientific Name

Conyza canadensis
Polygonum persicaria
Lactuca serriola
Malva neglecta
Sarcostemma
cynanchoides
Ipomoea spp.
Brassica nigra

Precautions: Do not apply sprays containing Roundup over the top of ornamental plants.

Extreme care must be exercised to prevent sprays containing Roundup from coming in contact with foliage and stems of turfgrasses, trees, shrubs, or other desirable vegetation since severe damage or death may result. If spraying with Roundup in areas adjacent to desirable plants, use a shield to prevent spray from contacting foliage and stems of desirable plants.

Special Use Precautions:

Apply only to established plants that have been transplanted into their growing location for a sufficient period of time to allow the soil to be firmly settled around the roots from packing and rainfall or irrigation.

Rooted liners should be removed from their original growing containers and placed in new containers at least two weeks prior to treatment or injury may occur.

To avoid possible injury, do not apply Surflan A.S. to:

- Nursery, forest, or Christmas tree: seedling beds, cutting beds, or transplant beds.
- Unrooted liners or cuttings that have been planted in pots for the first time.
- Pots less than four inches wide.
- Ground covers until they are established and well rooted.
- Ornamental plantings where there is likelihood of runoff onto lawn areas.
- Areas containing dichondra or cool season turfgrass species.

On container grown ornamentals where weed seed germination continues for extended periods of time, do not make repeat applications of Surflan A.S. for at least 90 days or crop injury may occur.

Applications of Surflan A.S. over the top of plants with newly forming buds may cause injury. In this situation a directed spray is recommended.

For soils treated with Surflan A.S. during the previous season, plant only the ornamental species listed on this label or injury may occur.

Ice Plant: When establishing unrooted ice plant on coarse-textured soils in landscape plantings, do not exceed the 2 quart per acre rate of Surflan A.S. or crop injury may occur.

Note: Injury on the following plant species has been observed following applications of Surflan A.S. and use is not recommended:

- Deutzia gracilis* (slender deutzia)
- Pseudotsuga menziesii* (Douglas-fir)
- Thuja occidentalis* 'Techny' (Techny arborvitae)
- Tsuga canadensis* (eastern hemlock)
- Begonia* spp. (begonia)
- Coleus hybridus* (coleus)

Surflan A.S. May be Used on the Following

Established Plant Species:

(Note: Limitations on recommended treatment methods).

Trees

Recommended Treatment Method

F = Field Grown

C = Container Grown

Scientific Name

Common Name

<i>Abies balsamea</i>	Fir, balsam	F
<i>Abies concolor</i>	Fir, white	F

<i>Abies fraseri</i>	Fir, fraser	F
<i>Abies grandis</i>	Fir, grand	F
<i>Abies veitchi</i>	Fir, Vietch	F
<i>Abies lasiocarpa</i>	Fir, alpine	F
<i>Abutilon hybridum</i>	Albus-flowering maple	F
	Luteus-flowering maple	F
	Roseus-flowering maple	F
	Tangerine-flowering maple	F
	Vesuvius red-flowering maple	F
<i>Acer ginnmala</i>	Flame maple	F
<i>Acer rubrum</i>	Red sunset maple	F
<i>Acer saccharinum</i>	Silver maple	F
<i>Acer</i> spp.	Maple	F
<i>Alsophila australis</i>	Australian tree fern	C,F
<i>Areacastrum romanzoffianum</i>	Queen palm	F
<i>Betula nigra</i>	Birch, river	F
<i>Betula papyrifera</i>	Paper birch	F
<i>Betula pendula</i>	Birch, white	F
<i>Bucida buceras</i>	Black olive	F
<i>Carya</i> spp.	Pecan, ornamental	C,F
<i>Cedrus, atlantica</i>	Atlas cedar	C,F
<i>Cedrus deodara</i>	Deodar cedar	C,F
<i>Ceratonia siliqua</i>	Carob	F
<i>Cercidium floridum</i>	Palo Verde, blue	F
<i>Cercis canadensis</i>	Redbud	C,F
<i>Chamaecyparis lawsoniana</i>	Falsecypress, Lawson	F
<i>Chamaecyparis obtusa</i>	Filicoides-fernspray cypress	F
	Gracilis-slender Hinoki cypress	F
<i>Chamaecyparis pisifera</i>	Sawara-false cypress	F
	Squarrosa-moss cypress	F
<i>Chamaedorea cataractarum</i>	Cat Palm	F
<i>Chamaedorea costaricana</i>	Palm	F
<i>Chamaedorea elegans</i>	Parlor palm	F
<i>Citrus</i> spp.	Citrus, ornamental	C,F
<i>Cornus florida</i>	Dogwood, flowering	F
<i>Cryptomeria japonica</i>	Cryptomeria, Japanese	C,F
<i>Cupaniopsis anacardioides</i>	Carrot wood	F
<i>Cupressus arizonica (glabra)</i>	Cypress, Arizona	C,F
<i>Cupressus glabra</i>	Arizona cypress	C,F
<i>Cupressocyparis leylandii</i>	Leyland cypress	C,F
<i>Cupressus sempervirens</i>	Cypress, Italian	C,F
<i>Dicksonia antarctica</i>	Tasmanian tree fern	C,F
<i>Elaeagnus angustifolia</i>	Russian olive	C,F
<i>Eucalyptus camaldulensis</i>	Red gum eucalyptus	F
<i>Eucalyptus cinerea</i>	Eucalyptus, mealy	F
	Silver dollar eucalyptus	F
<i>Eucalyptus nicholii</i>	Eucalyptus, narrow-leaved	F
<i>Eucalyptus sideroxylon</i>	Eucalyptus, red ironbark	F
<i>Ficus benjamina</i>	Ficus	F
<i>Fraxinus</i> spp.	Ash	F
<i>Ginkgo biloba</i>	Ginkgo (Maidenhair tree)	C,F
<i>Gleditsia triacanthos</i>	Honey locust	F
<i>Heteromeles arbutiflora</i>	Toyon	F
<i>Juniperus virginiana</i>	Redcedar, Eastern	F
<i>Koelreuteria paniculata</i>	Goldenrain tree	F
<i>Liquidambar styraciflua</i>	Sweetgum, American	C,F
<i>Magnolia</i> spp.	Magnolia	F
<i>Malus</i> spp.	Crabapple	F
<i>Morus alba</i>	White mulberry	F
<i>Picea abies</i>	Pendula-weeping Norway spruce	F
	Repens-spreading Norway spruce	F
	Spruce, Norway	F

<i>Picea englemanni</i>	Spruce, Englemann	F	<i>Berberis thunbergii</i>	Aurea-golden Japanese barberry	C,F
<i>Picea glauca</i>	Spruce, white	F		Crimson pygmy barberry	C,F
	Conica-dwarf Alberta spruce	F		Atropurea-redleaf Japanese barberry	C,F
<i>Picea glauca conica</i>	Dwarf Alberta spruce	F		Barberry, Japanese	C,F
<i>Picea mariana</i>	Spruce, black	F		Barbara Karst	F
<i>Picea pungens</i>	Glauca-Colorado blue spruce	F	<i>Bougainvillea</i> spp.	California gold	F
	Hoopsii-Hoop's blue spruce	F		Scarlet O'Hara	F
	Koster-Koster blue spruce	F		Texas dawn	F
	Spruce, Colorado	C,F		Littleleaf boxwood	F
<i>Pinus aristata</i>	Bristlecone pine	F	<i>Buxus microphylla</i>	Boxwood, Japanese	C,F
<i>Pinus canariensis</i>	Canary Island pine	F	<i>Buxus microphylla japonica</i>	Boxwood, common	C,F
<i>Pinus contorta</i>	Shore pine, beach pine	F	<i>Buxus sempervirens</i>	Bottlebrush, lemon	C,F
<i>Pinus eldarica</i>	Eldarica pine	F	<i>Callistemon citrinus</i>	Cassia, feathery	F
<i>Pinus halepensis</i>	Aleppo pine	C,F	<i>Cassia artemisioides</i>	Jerseytea, redroot	C,F
<i>Pinus radiata</i>	Monterey pine	F	<i>Ceanothus americanus</i>	Wild lilac	C,F
<i>Pinus</i> spp.	Pine	C,F	<i>Ceanothus</i> spp.	Flowering quince	C,F
<i>Pinus strobus</i>	Eastern white pine	F	<i>Chaenomeles japonica</i>	Kosteri cypress	F
<i>Pinus sylvestris</i>	Scotch pine	F	<i>Chamaecyparis obtusa</i>	Nana-dwarf Hinoki cypress	F
<i>Pinus thunbergiana</i>	Japanese black pine	F		Torulosa cypress	F
<i>Platanus occidentalis</i>	American sycamore	F		Squarrosa Minima cypress	F
<i>Platanus racemosa</i>	Califorina sycamore	F	<i>Chamaecyparis pisifera</i>	Filifera-thread cypress	F
<i>Podocarpus</i> spp.	Podocarpus	F	<i>Chamaecyparis pisifera</i> spp.	Areca palm	F
<i>Populus deltoides</i>	Cottonwood	F	<i>Chrysalidocarpus lutescens</i>	Cleyera, Japanese	C,F
	Cottonwood (grown for pulp)	F	<i>Cleyera japonica</i>	Pink breath of heaven	C,F
<i>Prunus caroliniana</i>	Laurelcherry, Carolina	F	<i>Coleonema pulchrum</i>	Sibirica-Siberian dogwood	F
<i>Prunus glandulosa</i>	Dwarf flowering almond	C,F	<i>Cornus alba</i>	Dogwood, kousa	C,F
<i>Prunus laurocerasus</i>	Laurelcherry, English	F	<i>Cornus kousa</i>	Flaviramea-yellowtwig dogwood	F
<i>Prunus mahaleb</i>	Cherry, Mahaleb	F	<i>Cornus stolonifera</i>		
<i>Prunus yedoensis</i>	Yoshino flowering cherry	F			
<i>Pyrus communis</i>	Pear	F	<i>Cotoneaster adpressus</i>	Praecox-early cotoneaster	F
<i>Quercus palustris</i>	Pin oak	F	<i>Cotoneaster apiculatus</i>	Cotoneaster, cranberry	C,F
<i>Quercus phellos</i>	Willow oak	F	<i>Cotoneaster buxifolius</i>	Cotoneaster, brightbead	F
<i>Quercus rubra</i>	Red oak	C,F	<i>Cotoneaster congestus</i>	Cotoneaster, Pyrenees	F
<i>Quercus</i> spp.	Oak	C,F	<i>Cotoneaster dammeri</i>	Cotoneaster, bearberry	C,F
<i>Salix babylonica</i>	Babylon weeping willow	F	<i>Cotoneaster himalayan</i>	Himalayan cotoneaster	F
	Corkscrew willow	F	<i>Cotoneaster horizontalis</i>	Cotoneaster, rock	C,F
<i>Schinus molle</i>	California pepper tree	F	<i>Cotoneaster lacteus</i>	Cotoneaster, parney	C,F
<i>Sequoia sempervirens</i>	Redwood, coast	F	<i>Cotoneaster microphyllus</i>	Cotoneaster, rockspray	F
<i>Sequoiadendron giganteum</i>	Giant sequoia	F	<i>Cotoneaster salicifolia</i>	Willowleaf cotoneaster	C,F
<i>Swietenia mahogani</i>	Mahogany	F	<i>Cytisus praecox</i>	Hollandia-warminster broom	F
<i>Tabebuia caraiba</i>	Yellow tab	F	<i>Cytisus scoparius</i>	Lena-Scotch broom	F
<i>Tilia cordata</i>	Linden, little leaf	C,F	<i>Dasyliiron wheeleri</i>	Sotol, desert spoon	F
<i>Ulmus parvifolia</i>	Chinese elm	F	<i>Deutzia crenata</i>	Nakiana-dwarf deutzia	F
<i>Umbellularia californica</i>	California laurel	F	<i>Dodonaea viscosa</i>	Hopseedbush, clammy	F
<i>Washingtonia robusta</i>	Mexican fan palm	F		Hopseed bush	F

Shrubs

Recommended Treatment Method

F = Field Grown

C = Container Grown

Scientific Name	Common Name				
<i>Abelia grandiflora</i>	Glossy abelia	F		<i>Euonymus alata</i>	Euonymus, winged
<i>Acacia redolens</i>	Acacia, prostrate	F		<i>Euonymus fortunei</i>	Canadale gold euonymus
<i>Agave americana</i>	Century plant	F			Emerald'n gold euonymus
<i>Agave macroculmis</i>	Agave	F			Euonymus, stringybark
<i>Anisodonteia hypomandarum</i>	Cape mallow	C,F	<i>Euonymus japonica</i>		Wintercreeper
<i>Arctostaphylos stanfordiana</i>	Manzanita, Stanford	F			Euonymus, evergreen
<i>Astilbe chinensis</i>	Astilbe/false spirea	C,F	<i>Euonymus kiatschovica</i>		Silver king euonymus
<i>Baccharis pilularis</i>	Coyotebush	F	<i>Euonymus vegetus</i>		Spreading euonymus
			<i>Fatshedera lizei</i>		Bigleaf wintercreeper
			<i>Fatsia japonica</i>		Fatshedera
			<i>Felicia amelloides</i>		Japanese aralia
			<i>Forsythia intermedia</i>		Blue marguerite
			<i>Gardenia jasminoides</i>		Forsythia, border
			<i>Genista pilosa</i>		Gardenia
					Woadwaxen

<i>Hibiscus rosa-sinensis</i>	Ross Estey-hibiscus	F	<i>Nandina domestica</i>	Compacta-dwarf heavenly bamboo	C,F
	Hibiscus, Chinese	F		Harbour dwarf-heavenly bamboo	C,F
<i>Hibiscus syriacus</i>	Rose of Sharon, Red Bird	F		Heavenly bamboo (Nandina)	C,F
	Rose of Sharon, Red Heart	F		Nana compacta-heavenly bamboo	C,F
	Rose of Sharon, Woodbridge	F		Nana purpurea-heavenly bamboo	C,F
	Rose-of-Sharon (Shrubalthea)	F		Woods dwarf-heavenly bamboo	C,F
<i>Ilex aquifolium</i>	Balkans holly	F		Hardy red oleander	C,F
	Gold coast holly	F		Oleander	C,F
	Holly, English	F		Ruby lace oleander	C,F
<i>Ilex aquipernyi</i>	San Jose holly	C,F		Osmanthus, holly-leaf	F
<i>Ilex cornuta</i>	Dwarf Burford holly	C,F	<i>Nerium oleander</i>	Japanese spurge	C,F
	Holly, Chinese	C,F		Mockorange	C,F
<i>Ilex crenata</i>	Compacta-dwarf Japanese holly	C,F		Pigmy date palm	F
	Convexa holly	C,F	<i>Osmanthus heterophyllus</i>	Fraser's photinia	C,F
	Helleri-Heller's Japanese holly	C,F	<i>Pachysandra terminalis</i>	Photinia	C,F
	Holly, Japanese	C,F	<i>Philadelphus spp.</i>	Lily-of-the-valley	F
<i>Ilex glabra</i>	Nordica-inkberry holly	F	<i>Phoenix roeloenii</i>	Snowdrift lily-of-the-valley	F
<i>Ilex meserveae</i>	Blue boy holly	F	<i>Photinia fraseri</i>	Temple bells lily-of-the-valley	F
	Blue girl holly	F		Valley rose lily-of-the-valley	F
	Ebony magic holly	F	<i>Pieris japonica</i>	Andromeda	C,F
<i>Ilex vomitoria</i>	Nana-dwarf yaupon holly	C,F		Pittosporum	C,F
	Pendula-weeping yaupon holly	C,F		Green pittosporum	F
	yaupon holly	C,F	<i>Pittosporum spp.</i>	Japanese pittosporum	F
<i>Juniperus chinensis</i>	Media-old gold juniper	C,F	<i>Pittosporum tobira</i>	Tobira	F
<i>Juniperus conferta</i>	Emerald sea shore juniper	F		Wheeler's dwarf pittosporum	F
<i>Juniperus horizontalis</i>	Huntington blue juniper	C,F	<i>Platycladus orientalis</i>	Arborvitae, Oriental	C,F
	Wiltonii-blue carpet juniper	C,F	<i>Plumbago ariculata</i>	Blue cape plumbago	F
<i>Juniperus procumbens</i>	Nana-dwarf Japanese garden juniper	C,F	<i>Podocarpus macrophyllus</i>	Yewpine	C,F
<i>Juniperus prostrata</i>	Prostrata juniper	C,F	<i>Potentilla fragiformis</i>	Cinquefoil	F
<i>Juniperus sabina</i>	Broadmoor juniper	F	<i>Potentilla fruticosa</i>	Cinquefoil	C,F
	Foemina-Hicks juniper	F	<i>Protea neriifolia</i>	Firethorn, scarlet	C,F
	Tamariscifolia-Tam juniper	F	<i>Pyracantha coccinea</i>	Lolendei Monrovia pyracantha	C,F
<i>Juniperus scopulorum</i>	Emerald green juniper	F	<i>Pyracantha fortuneana</i>	Monon pyracantha	C,F
<i>Juniperus spp.</i>	Juniper	C,F	<i>Pyracantha fortuneana</i>	Red elf hybrid pyracantha	C,F
<i>Juniperus squamata</i>	Blue juniper	F		Rutgers hybrid pyracantha	C,F
	Blue star juniper	F	<i>Pyracantha skoidzumi</i>	Santa Cruz pyracantha	C,F
	Parsonii juniper	F	<i>Pyracantha, fortuneana</i>	Victory pyracantha	C,F
<i>Justicia brandegeana</i>	Shrimp plant	C,F		Firethorn, formosa	C,F
<i>Justicia spicigera</i>	Honeysuckle, Mexican	F	<i>Rhaphiolepis indica</i>	Firethorn	C,F
<i>Kalmia latifolia</i>	Laurel, mountain	F		Enchantress-Moness raphiolepis	F
<i>Lagerstroemia indica</i>	Crape myrtle	C,F		Rhaphiolepis (India hawthorn)	C,F
<i>Lavandula angustifolia</i>	English lavender	C,F		Springtime-Monme raphiolepis	F
<i>Leucothoe axillaris</i>	Leucothoe, coast	F	<i>Rhaphiolepis ovata</i>	Roundleaf raphiolepis	F
<i>Leucothoe fontanesiana</i>	Leucothoe, drooping	F	<i>Rhipsalidopsis gaertneri</i>	Eastercactus	C,F
<i>Ligustrum amurense</i>	Privet, amur	C,F	<i>Rhododendron calendulaceum</i>	Flame azalea	F
<i>Ligustrum japonicum</i>	Privet, Japanese	C,F	<i>Rhododendron</i>		
	yellow tip ligustrum	C,F	<i>Rhododendron campylocarpum</i>	Butterfly rhododendron	F
<i>Ligustrum lucidum</i>	Privet, glossy	C,F	<i>Rhododendron carolinianum</i>		
<i>Ligustrum ovalifolium</i>	California privet	F	<i>Rhododendron x daurium</i>		
<i>Ligustrum texanum</i>	Howardi privet	F	<i>Rhododendron catawbiense</i>	Catawba album rhododendron	C,F
	Wax leaf privet	F		Catawba rhododendron	C,F
<i>Ligustrum vicaryi</i>	Privet, golden	C,F		Lord Roberts rhododendron	C,F
	Vicary golden privet	C,F		Rocket rhododendron	C,F
<i>Livistona chinensis</i>	Chinese fountain palm	F			
<i>Lonicera fragrantissima</i>	Winter honeysuckle	F			
<i>Lonicera periclymenum</i>	Flowering woodbine	F			
	Serotina woodbine	F			
<i>Lonicera sempervirens</i>	Trumpet honeysuckle	F			
<i>Lorpetalum chinense</i>	(No common name)	C,F			
<i>Mahonia aquifolium</i>	Oregon grape	F			
<i>Myoporum parvifolium</i>	Myoporum, prostrate	F			
<i>Myrtus communis</i>	Myrtle, true	C,F			

<i>Rhododendron forrestii</i> x <i>griersonianum</i>	Elizabeth rhododendron	F	<i>Viburnum trilobum compactum</i>	Dwarf cranberry bush	F
<i>Rhododendron hybrid spp.</i>	America rhododendron	F	<i>Viburnum x pragense</i>	Viburnum	F
	English Roseum rhododendron	F	<i>Weigela florida</i>	Bristol ruby weigela	F
	Nova Zembla rhododendron	F		Java red weigela	F
	Scintillation rhododendron	F		Minuet weigela	F
<i>Rhododendron impeditum</i>	Rhododendron	F	<i>Xylosma congestum</i>	Weigela, oldfashioned	F
<i>Rhododendron indica</i>	Formosa azalea	C,F	<i>Yucca elata</i>	Xylosma	F
	Waucabusa azalea	C,F	<i>Yucca recurvifolia</i>	Yucca, soaptree	C,F
<i>Rhododendron kerume</i>	Coral bells azalea	C,F		Yucca, pendulous	F
	Hino crimson azalea	C,F			
	Hino pink azalea	C,F			
	Snow azalea	C,F			
<i>Rhododendron maximum</i>	Rhodie max (rosebay)	C,F			
<i>Rhododendron mucronulatum</i>	Rhododendron	F			
<i>Rhododendron satuski</i>	Gumpo pink azalea	F			
	Higasa azalea	F			
<i>Rhododendron spp.</i>	Azalea	C,F			
	Rhododendron	C,F			
<i>Rhododendron spp. hybrids</i>	Carror azalea	C,F			
	Girard Roberta azalea	F			
	Golden flare exbury azalea	F			
<i>Rhus lancea</i>	Sumac, African	C,F			
<i>Rosa rugosa</i>	Ramanas rose	F			
<i>Rosmarinus officinalis</i>	Rosemary	F			
<i>Senecio cineraria</i>	Dusty miller	C,F			
<i>Spiraea vanhouttei</i>	Bridal wreath	F			
<i>Syringa vulgaris</i>	Lilac, common	C,F			
<i>Syzygium paniculata</i>	Brush cherry	C,F			
<i>Taxus cuspidata</i>	Yew, Japanese	F			
<i>Taxus media</i>	Yew	F			
<i>Thuja occidentalis</i>	Arborvitae, American	C,F			
	Emerald arborvitae	F			
	Globosa-globe arborvitae	F			
	Little giant-dwarf arborvitae	F			
	Nigra-dark American arborvitae	F			
	Pyramidalis arborvitae	F			
	Rheingold arborvitae	F			
	Woodwardii arborvitae	F			
<i>Thuja orientalis</i>	Aureus nana-dwarf golden arborvitae	F			
	Minima glauca-dwarf arborvitae	F			
<i>Thuja plicata</i>	Red Cedar, Western	F			
<i>Trachelospermum jasminoides</i>	Star jasmine, Chinese	F			
<i>Veitchia merrilli</i>	Christmas palm	F			
<i>Viburnum carlesii</i>	Koreanspice viburnum	C,F			
<i>Viburnum davidii</i>	David viburnum	F			
<i>Viburnum japonicum</i>	Viburnum	F			
<i>Viburnum judd</i> (V X Judii)	Viburnum	C,F			
<i>Viburnum opulus sterile</i>	Common snowball viburnum	F			
<i>Viburnum plicatum tomentosum</i>	Doublefile viburnum	F			
<i>Viburnum setigerum</i>	Tea viburnum	F			
<i>Virburnum suspensum</i>	Virburnum, Sandankwa	F			
<i>Viburnum tinus</i>	Viburnum, Laurustinus	C,F			
	Compactum-spring bouquet viburnum	F			
<i>Viburnum tinus compactum</i>	Spring bouquet viburnum	F			

Groundcovers/Perennials Recommended Treatment Method
F = Field Grown
C = Container Grown

Scientific Name	Common Name	
<i>Agapanthus africanus</i>	Lily-of-the-Nile	C,F
<i>Ajuga</i> spp.	Carpet bugle	F
<i>Arctotheca calendula</i>	Cape weed	F
<i>Asparagus retrofractus</i>	(No common name)	C,F
<i>Asparagus varieegata</i>	Tree fern	C,F
<i>Aster novae-angliae</i>	New England aster	C,F
<i>Aster novi-belgii</i>	New York aster	C,F
<i>Athyrium nipponicum</i>	Japanese painter fern	C,F
<i>Brassica oleracea</i>	Wild cabbage	C,F
<i>Callistepheus chinensis</i>	China aster	C,F
<i>Campanula elatines</i>	Bellflower	C,F
<i>Carpobrotus edulis</i>	Ice plant, largeleaf (see label)	F
<i>Clytostoma callistegioides</i>	Trumpet vine, violet	C,F
<i>Cortaderia selloana</i>	Pampas grass	F
<i>Cuphea hyssopifolia</i>	False Mexican heather	C,F
<i>Delosperma alba</i>	White iceplant	F
<i>Dietes vegeta</i>	Fortnight lily	C,F
<i>Digitalis mertonensis</i>	Foxglove	C,F
<i>Doronicum cordatum</i>	Leopard's bane	C,F
<i>Drosanthemum floribundum</i>	Trailing rosea iceplant	F
<i>Erianthus ravennae</i>	Hardy pampus grass	C,F
<i>Festuca ovina glauca</i>	Blue fescue	F
<i>Gaillardia grandiflora</i>	Blanket flower	C,F
<i>Gazania rigens leucolaena</i>	Gazania, trailing	C,F
<i>Gazania</i> spp.	Gazania	F
<i>Hedera canariensis</i>	Ivy, Algerian	F
<i>Hedera helix</i>	Ivy, English	F
<i>Heliotropium fragrans</i>	Common heliotrope	C,F
<i>Hemerocallis</i> spp.	Daylily	C,F
<i>Hosta lancifolia</i>	Albo-marginata hosta	C,F
<i>Hosta</i> spp.	Lily, plantain	C,F
<i>Heuchera micrantha</i>	Coral bells	C,F
<i>Hypericum</i> spp.	St. Johnswort	C,F
<i>Iberis sempervirens</i>	Evergreen candytuft	C,F
<i>Lampranthus spectabilis</i>	Trailing iceplant	F
<i>Leptospermum scaparium</i>	New Zealand teatree/Manuka	C,F
<i>Limonium perezii</i>	Statice/Sea lavender	C,F
<i>Liriope gigantea</i>	White lily turf	F
<i>Liriope muscari</i>	Lilac beauty lily turf	C,F
	Majestic lily turf	C,F
	Monroe white lily turf	C,F
	Silvery sunproof lily turf	C,F
	Variegated liriope lily turf	C,F
	Big blue lily turf	C,F
<i>Lobelia erinus</i>	Edging lobelia	C,F
<i>Lonicera japonica</i>	Honeysuckle, Japanese	F

<i>Mesembryanthemum crystallinum</i>	Ice plant (see label)	F
<i>Ophiopogon japonicus</i>	Mondo grass	F
<i>Osteospermum fruticosum</i>	Daisy, trailing African	F
<i>Pachysandra terminalis</i>	Japanese spurge	F
<i>Pennisetum setaceum</i>	Fountaingrass	C,F
<i>Polystichum polyblepharum</i>	Tassel fern	C,F
<i>Sedum brevifolium</i>	Stonecrop	C,F
<i>Sedum kamtschaticum</i>	Stonecrop	C,F
<i>Sedum spurium</i>	Stonecrop, tworow	C,F
<i>Tulbaghia violacea</i>	Society garlic	C,F
<i>Verbena rigida</i>	Veined verbena	C,F
<i>Veronica</i> spp.	Speedwell	C,F
<i>Vinca major</i>	Periwinkle, bigleaf	F
<i>Vinca minor</i>	Periwinkle, dwarf	F

avocado	F
blackberry	F
blueberry	F
boysenberry	F
cherry, sour	F
cherry, sweet	F
currant	F
dewberry	F
elderberry	F
fig	F
filbert	F
gooseberry	F
grape, American	F
grape, European	F
grapefruit	F
kiwi	F
Kumquat	C,F
lemon	F
loganberry	F
macadamia nut	F
nectarine	F
olive	F
orange	C,F
peach	F
pear	F
pecan	C,F
pistachio	F
plum	F
pomegranate	F
prune	F
raspberry	F
walnut, black	F
walnut, English	F

Flowers

Recommended Treatment Method F = Field Grown C = Container Grown

Scientific Name	Common Name	
<i>Achillea</i> spp.	Yarrow	C,F
<i>Antirrhinum majus</i>	Snapdragon	F
<i>Caladium bicolor</i>	Caladium, fancy leafed	F
<i>Chrysanthemum</i> spp.	Chrysanthemum	C,F
<i>Cladium bicolor</i>	Fancy-leafed caladium	F
<i>Coreopsis lanceolata</i>	Coreopsis	F
<i>Coreopsis verticulata</i>	Threadleaf coreopsis	C,F
<i>Dianthus barbatus</i>	Sweet William	F
<i>Dianthus gratianopolitanus</i>	Cheddar pink	C,F
<i>Dicentra spectabilis</i>	Bleeding heart	C,F
<i>Dimorphothecca</i> spp.	Marigold, cape	F
<i>Echinacea purpurea</i>	Coneflower, purple	C,F
<i>Evolvulus nuttallianus</i>	Blue daze	C,F
<i>Geum quellyon</i>	Geum	F
<i>Gladiolus hortulanus</i>	Gladiolus	F
<i>Gypsophila paniculata</i>	Baby's breath	F
<i>Impatiens wallerana</i>	Impatiens (Busy lizzie)	F
<i>Iris</i> spp.	Iris, bearded	F
<i>Liatris spicata</i>	Blazing star	C,F
<i>Pelargonium hortorum</i>	Geranium	F
<i>Petunia</i> spp.	Petunia	C,F
<i>Portulaca grandiflora</i>	Moss, rose	F
<i>Ranunculus asiaticus</i>	Ranunculus, Persian	F
<i>Rosa</i> spp.	Rose	F
<i>Rudbeckia fulgida</i>	Blackeyed susan	C,F
<i>Rudbeckia hirta</i>	Daisy, gloriosa (black-eyed Susan)	F
<i>Salvia</i> spp.	Salvia (Sage)	F
<i>Stokesia laevis</i>	Aster, stokes	F
<i>Strelitzia reginae</i>	Bird of paradise	F
<i>Tagetes</i> spp.	Marigold	F
<i>Viola wittrockiana</i>	Pansy	F
<i>Zinnia elegans</i>	Zinnia, common	F

† Non-bearing plants are defined as those that will not bear fruit for at least one year after treatment.

Ornamental Bulbs

Surflan A.S. may be applied for control of susceptible annual weeds in ornamental bulbs, e.g., bulbous iris, daffodil (narcissus), hyacinth, and tulip. Apply Surflan A.S. to the soil surface 2-4 weeks after planting, but prior to the emergence of annual weeds. For fall planted bulbs, apply Surflan A.S. again in late winter or early spring to weed-free soil surfaces.

Broadcast Application Rates

Time of Application	Soil Texture	Surflan A.S.		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
		(qt/acre)	(fl oz/1000 sq ft)		
Fall	Coarse	0.75	0.5	3	1.5
Fall	Medium and Fine	1.5	1.0	3	2.25
Feb. - March	All Soil Textures	0.75	0.5	3	2.25

Non-bearing Trees and Vines

Recommended Treatment Method F = Field Grown C = Container Grown

almond	F
apple	F
apricot	F

Special Use Precautions:

Do not apply to tulip plants that have emerged to a height greater than 3/4 inch.

Do not apply to gladioli corms prior to emergence or less than one (1) inch in diameter.

Shadehouse Areas

Surflan A.S. may be applied to drainage areas under benches in open shadehouse-type structures where the natural flow of air is unimpeded. Do not apply in enclosed greenhouses or in enclosed shadehouse-type structures. Do not apply within 3 weeks prior to enclosure of greenhouse or poly-type structures.

Christmas Tree Plantations

Surflan A.S. Alone

Apply Surflan A.S. as a directed spray to the soil surface or as an overtop spray to established plantings of field grown Christmas tree species, including fir (*Abies* spp.), pine (*Pinus* spp.), and spruce (*Picea* spp.). Follow all instructions provided in the "General Information" section of this label.

Broadcast Application Rates

Length of Control	Surflan A.S.		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
	(qt/acre)	(fl oz/ 1000 sq ft)		
2 - 4 months	2	1.5	2	8
4 - 8 months	4	3	2	8

Tank Mix Combinations

Tank mix combinations of Surflan A.S. plus other labeled herbicides may be used as directed or overtop sprays in established Christmas tree plantings. 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.

Surflan A.S. Plus Roundup: Apply tank mix combinations of Surflan A.S. plus Roundup only as directed sprays in Christmas tree plantings. When applied according to use directions, Surflan A.S. plus Roundup will provide postemergence control of susceptible weed species listed on the label for Roundup and residual preemergence control of susceptible weed species listed on the label for Surflan A.S. Refer to the label for Roundup for specific use directions, precautions, and limitations before use.

Special Use Precautions:

Do not apply to Douglas-fir (*Pseudotsuga menziesii*). Do not apply to seedbeds or seedling transplant beds. Apply only to established plants that have been transplanted into their final growing location for a sufficient period of time to allow the soil to be firmly settled around the roots from packing and rainfall or irrigation.

Noncropland Areas and Industrial Sites

Noncropland Areas - Tank Mix Combinations

Tank mix combinations of Surflan 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

Length of Control	Surflan A.S.		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
	(qt/acre)	(fl oz/ 1000 sq ft)		
2 - 4 months	2	1.5	2	6
4 - 8 months	4	3	4	12
8 - 12 months	6	4.5	8	12

Industrial Sites - Tank Mix Combinations

Tank mix combinations of Surflan A.S. plus Roundup, Spike* herbicide, and many other labeled herbicides may be used as overtop sprays to control existing vegetation on industrial sites such as utility substations, highway guard rails, sign posts, and delineators. 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 limitation before use.

Warm Season Turfgrasses

Surflan A.S. may be applied as a preemergence treatment for control of annual grasses and certain broadleaf weeds in established warm season turf including bahiagrass, bermudagrass, buffalograss, centipedegrass, St. Augustinegrass, zoysiagrass, and established tall fescue growing in warm season areas. Established turf is defined as a dense turf having a well-anchored root system and healthy, vigorous top growth. Use Surflan A.S. only as a part of a total turf management program that includes good fertilization practices.

Surflan A.S. may be tank mixed with Gallery* herbicide (California registration pending) and applied preemergence to broaden the spectrum of broadleaf weed control in warm season turf. Refer to the label for Gallery for specific use directions, precautions, and limitations before use.

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

Surflan A.S. will not control emerged weeds. Successful preemergence control of weeds listed on this label requires that Surflan A.S. be applied prior to weed germination and be activated by at least one-half (1/2) inch of rainfall or irrigation within 21 days of application.

Surflan A.S. may injure turf that is not well established or is stressed or weakened due to unfavorable winter climatic conditions, drought, nematodes, or other factors which damage or weaken turf root systems.

Apply Surflan A.S. only to healthy, well-established turf that has a well-anchored root system.

Do not apply Surflan A.S. in the spring or early summer to tall fescue turfgrass reseeded the previous fall. In such cases, apply Balan* 2.5G granular herbicide at 60-80 pounds per acre in early summer (Round 1) and Surflan A.S. at 1.5 quarts per acre approximately eight weeks later (Round 2). Do not apply Surflan A.S. at the single application rate (2 quarts per acre) to established tall fescue; in such cases, apply 1.5 quarts per acre of Surflan A.S. in an initial application, followed by a second application of 1.5 quarts per acre 8-10 weeks later.

In bermudagrass areas that have been overseeded with winter grasses, a spring application of Surflan A.S. will thin the overseeded grasses.

Annual Grasses Controlled by Surflan A.S.

Summer Annuals:

Common Name	Scientific Name
barnyardgrass (watergrass)	<i>Echinochloa crus-galli</i>
crabgrass, large	<i>Digitaria sanguinalis</i>
crabgrass, smooth	<i>Digitaria ischaemum</i>
crabgrass	<i>Digitaria</i> spp.
crowfootgrass	<i>Dactyloctenium aegyptium</i>
foxtail, bristlegrass	<i>Setaria magna</i>
foxtail, giant	<i>Setaria faberi</i>
foxtail, green (pigeongrass)	<i>Setaria viridis</i>
foxtail, robust	<i>Setaria robusta</i>
foxtail, yellow	<i>Setaria glauca</i>
goosegrass (silver crabgrass)	<i>Eleusine indica</i>
Johnsongrass (seedling only)	<i>Sorghum halepense</i>
ryegrass, Italian	<i>Lolium multiflorum</i>
sandbur, field	<i>Cenchrus incertus</i>

Winter Annuals:

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

Annual Broadleaf Weeds Controlled by Surflan 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 Suppressed by Surflan A.S.

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

Application Rates, Frequency, and Timing of Application

Surflan A.S. can be applied in the spring for summer annual grass and broadleaf weed control, and in the fall for annual bluegrass (*Poa annua*) and winter annual broadleaf weed control.

Broadcast Application Rates (Warm Season Turfgrasses)

Use Area	Surflan A.S.		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
	(qt/acre)	(fl oz/1000 sq ft)		
All, except Florida	1.5	1	3	6
Florida	2	1.5	3	6
Florida	1.5	1	3	4.5

1. Summer Annual Grasses and Broadleaf Weeds

Single Application Program: Apply 2 quarts per acre of Surflan A.S. in late winter or early spring, prior to the onset of conditions favorable for annual weed germination.

Split Application Program: As an alternative to a single application program, Surflan A.S. may be applied in a split application. This program is desirable when the initial application is made well in advance of weed germination and where weed control is desired for a longer period of time. Apply 1.5 quarts per acre of Surflan A.S. in an initial application, followed by a second application of 1.5 quarts per acre 8-10 weeks later.

The second treatment of the split application may follow application of a different preemergence grass herbicide in place of the initial application of Surflan A.S.

2. Annual Bluegrass (*Poa annua*) and Winter Annual Broadleaf Weeds

In areas of heavy annual bluegrass infestation, its elimination will result in temporary thinning of turfgrass cover. Proper fertilization, irrigation, and soil incorporated reseeding should be employed to speed the restoration of desirable turfgrass cover in areas previously occupied by annual bluegrass (see section on reseeding).

Apply Surflan A.S. as a preemergence treatment in late summer or early fall, prior to the expected germination period for annual bluegrass and winter annual broadleaf weeds. If annual bluegrass infestation is severe and its elimination will result in thinning of turfgrass cover, apply Surflan A.S. at 1.5 quarts per acre. If thinning of turfgrass cover is not a potential problem, Surflan A.S. may be applied at 2 quarts per acre.

Weed Control in Florida

In Florida, apply 1.5 quarts per acre of Surflan A.S. three times per year, or every 90-100 days, in the fall, early spring, and early summer. Do not apply more than 1.5 quarts per acre of Surflan A.S. in any single application.

Application Equipment

Apply Surflan A.S. evenly over the turfgrass area. Avoid spray pattern skips and overlaps that may result in incomplete coverage or over-application. For best results, use application equipment designed to uniformly broadcast liquid herbicides. Calibrate application equipment prior to use, according to manufacturer's directions. Check equipment frequently to make sure it is working properly and distributing spray uniformly.

Reseeding

Herbicides that control annual weeds may also affect establishment of desirable turfgrass seedlings. Reseeding should be delayed for at least 90-120 days following application of Surflan A.S. When reseeding, it is essential that proper cultural practices such as soil cultivation and seedbed preparation, irrigation, and fertilization be followed. For satisfactory reseeding results following use of Surflan A.S., the seeding rate should be increased and equipment designed to place seed in full contact with soil (such as the Rogers Aero Seeder) should be employed.

Special Use Precautions:

To avoid possible injury, do not apply Surflan A.S. to:

- Cool season turfgrass species.
- Golf course putting greens and tees or lawns containing dichondra or cool season turfgrass species.
- Newly sprigged or sodded areas of bermudagrass, St. Augustinegrass, centipedegrass, or zoysiagrass until these turfgrasses are well established and have well-anchored root systems.
- Newly hydromulched areas of bermudagrass until such areas are well established.
- Bermudagrass variety "Sun Turf" when tank mixed with atrazine.

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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Revisions:

1. **Directions for Use:** Addition of ornamental plant species to listings for which Surflan AS may be used for preemergence weed control.
2. Minor formatting changes.