

QUALI-PRO

Group	2	Herbicide
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MSM 250D

ACTIVE INGREDIENT:

Metsulfuron methyl: Methyl 2-

[[[(4-methoxy-6-methyl-1,3,5-triazin-2yl)amino]carbonyl]amino]sulfonyl]benzoate.....25.0%

OTHER INGREDIENTS:.....75.0%

TOTAL:100.0%

This product contains 2.15 pounds of metsulfuron-methyl per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

[REFER TO INSIDE OF BOOKLET FOR FIRST AID, PRECAUTIONARY STATEMENTS, STORAGE AND DISPOSAL, AND USE DIRECTIONS.]

EPA Reg. No. 53883-288
EPA Est. No. 53883-TX-002

Manufactured for:
Control Solutions, Inc.
5903 Genoa-Red Bluff • Pasadena, TX 77507

Net Weight: 4.5 fl. oz.

EPA100912/REV A

FIRST AID

If on skin or clothing:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

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 eye.
- Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact SafetyCall® International (866) 897-8050 for emergency medical treatment information.

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
AND DOMESTIC ANIMALS
CAUTION**

Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes and socks
- Chemical-resistant gloves such as butyl rubber, natural rubber, neoprene rubber, and nitrile rubber.

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

Engineering Control Statements:

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

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands thoroughly after handling and before eating drinking, chewing gum using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply where runoff water may flow during periods of intense rainfall or to water-saturated soils, as off-target movement and injury may occur. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

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

DIRECTIONS FOR USE

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

Do not apply this product 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 in your State responsible for pesticide regulation.

**DO NOT USE ON FOOD OR FEED CROPS.
DO NOT ALLOW GRAZING OF LIVESTOCK.**

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 these 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 4 HOURS.

PPE required for early entry 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
- Shoes plus socks
- Chemical resistant gloves such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber.

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.

Non-crop industrial weed control and selective weed control in turf (industrial, unimproved only) are not within the scope of the Worker Protection Standard.

Keep unprotected persons out of treated areas until sprays have dried.

SPRAY EQUIPMENT

Following a MSM 250D application, do not use the sprayer or mixing equipment for application to agricultural crops.

The selected sprayer should be equipped with an agitation system to keep MSM 250D suspended in the spray tank. Use a sufficient volume of water to thoroughly cover the foliage of undesirable weeds, generally 10 to 40 gallons per acre. Select a spray volume and delivery system that will ensure thorough coverage and a uniform spray pattern. Be sure to calibrate air or ground equipment properly before application. Avoid swath overlapping, and shutoff spray booms while starting, turning, slowing, or stopping to avoid crop injury.

Refer to the Brush Control section of this label for information unique to that particular use.

MIXING INSTRUCTIONS

1. Fill the tank 1/4 to 1/3 full of water (if using liquid nitrogen fertilizer solution in place of water, see Tank Mixtures sections for additional details).
2. While agitating, add the required amount of MSM 250D.
3. Continue agitation until the MSM 250D is fully dispersed, at least 5 minutes.
4. Once the MSM 250D is fully dispersed, maintain agitation and continue filling tank with water. MSM 250D should be thoroughly mixed with water before adding any other material.
5. As the tank is filling, add *tank* mix partners (if desired) then add the necessary volume of nonionic surfactant. Always add surfactant last.
6. If the mixture is not continuously agitated, settling will occur. If settling occurs, thoroughly reagitrate before using.
7. Spray preparations are stable if they are pH neutral or alkaline and stored at or below 100°F.
8. If MSM 250D and a tank mix partner are to be applied in multiple loads, pre-slurry the MSM 250D in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of MSM 250D.

SPRAYER CLEANUP

Spray equipment must be cleaned before MSM 250D is sprayed. Follow the cleanup procedures specified on the labels of previously applied products. If no directions are provided, follow the six steps outlined in "After Spraying MSM 250D" section of this label.

At the End of the Day

When multiple loads of MSM 250D are applied, it is recommended that at the end of each day of spraying the interior of the tank be rinsed with

fresh water and then partially filled, and the boom and hoses flushed. This will prevent the buildup of dried pesticide deposits that can accumulate in the application equipment.

To avoid subsequent injury to desirable crops, thoroughly clean all mixing and spray equipment immediately following applications of MSM 250D as follows:

1. Drain tank; thoroughly rinse spray tanks, boom, and hoses with clean water. Loosen and physically remove any visible deposits.
2. Fill the tank with clean water and 1 gal. of household ammonia* (contains 3% active) for every 100 gal. of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 minutes. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank.
3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
4. Repeat Step 2.
5. Rinse the tank, boom, and hoses with clean water.
6. If only ammonia is used as a cleaner, the rinsate solution may be applied back to the sites listed on this label. Do not exceed the maximum-labeled use rate. If other cleaners are used, consult the cleaner label for rinsate disposal instructions. If no instructions are given, dispose of the rinsate on site or at an approved waste disposal facility.

*Equivalent amounts of alternate-strength ammonia solution or an Control Solutions, Inc.

approved cleaner can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions. Consult your agricultural dealer, applicator, or an Control Solutions, Inc. representative for a listing of approved cleaners.

Notes:

1. Attention: Do not use chlorine bleach with ammonia as dangerous gasses will form. Do not clean equipment in an enclosed area.
2. Steam-cleaning aerial spray tanks is recommended prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.
3. When MSM 250D is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.
4. In addition to this cleanout procedure, all precleanout guidelines on subsequently applied products should be followed as per the individual labels.

**AGRICULTURAL USES
CONIFER AND HARDWOOD PLANTATIONS
CONIFER PLANTATIONS**

Application Information

MSM 250D is used for the control of many species of weeds and deciduous trees on sites where conifers are growing or are to be planted. Apply by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" and "Brush Species Controlled" for a listing of susceptible species.

Application Timing

Apply MSM 250D after weeds have emerged or after undesirable hardwoods have broken winter dormancy and have reached the point of full leaf expansion.

Conifer Site Preparation

Application Before Transplanting

After consulting the "Weeds Controlled" and "Brush Species Controlled" tables, apply the rates of MSM 250D specified for the most difficult to control species on the site.

Southeast – Apply up to 8.93 fl. oz. per acre for loblolly and slash pines. Transplant the following planting season.

Northeast and Lake States – Apply up to 4.47 fl. oz. per acre for red pine. Transplant the following planting season. Apply up to 4.47 fl. oz. per acre for black, white and Norway spruce. Transplant the following spring.

West – Apply up to 4.47 fl. oz. per acre prior to planting Douglas fir, Sitka Spruce, Western Red Cedar, Western Hemlock, Ponderosa Pine, and Grand Fir in the Coast Rangeland and western slope of the Cascades in Oregon and Washington. These conifer species listed can be planted anytime after application. Other conifer species can be planted providing the user has prior experience indicating acceptable tolerance to MSM 250D soil residues.

Without prior experience, it is recommended that other species be planted on a small scale to determine selectivity before large-scale plantings are made as unacceptable injury may occur. Control Solutions, Inc. will not assume responsibility for injury to any conifer species not listed on this label.

TANK MIX COMBINATIONS

For broader spectrum control, the following products are recommended in combination with MSM 250D.

Accord™

Tank mix 2.23 to 4.47 fl. oz. of MSM 250D with 2 to 10 quarts of Accord™ per acre. Refer to the product container for a list of species controlled.

Arsenal® Applicator's Concentrate

Tank mix 2.23 to 4.47 fl. oz. of MSM 250D with 10 to 24 fluid ounces of Arsenal® Applicator's Concentrate per acre. Loblolly and slash pines may be transplanted the planting season following the application. This combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbean, persimmon, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, and red maple.

Accord™ + Arsenal® Applicators Concentrate

Tank mix 1.12 to 2.23 fl. oz. of MSM 250D with 16 to 64 fluid ounces of Accord™ and 10 to 12 fluid ounces of Arsenal® Applicator's Concentrate per acre. Slash and loblolly pines may be transplanted the planting season following application. This combination controls cherry, dogwood, elms, oaks (red and water), persimmon, sassafras, sweetgum and suppresses hickory.

VELPAR® L or VELPAR® DF

Tank mix 2.23 to 4.47 fl. oz. of MSM 250D per acre with VELPAR® L or VELPAR® DF at the rates specified on the container for various soil textures. Loblolly and slash pines may be transplanted the planting season following application. Refer to the product container for a list of species controlled.

OUST® EXTRA

Tank mix 1.12 to 3.35 fl. oz. of MSM 250D with 2 to 3 ounces of OUST® EXTRA per acre for herbaceous weed control. Refer to the product container and the "Weeds Controlled" section of this label for a listing of the weeds controlled. Loblolly and slash pines may be transplanted the planting season following application. Tank mix 4.47 fl. oz. of MSM 250D with 3 ounces of OUST® EXTRA per acre for herbaceous weed control and early spring suppression of bull thistle and Canada thistle in the Coast Rangeland and western slope of the Cascade Mountains. Douglas Fir may be transplanted at least 90 days following application.

Release

Hardwood Control and Suppression

MSM 250D may be applied over the top of established slash and loblolly pine to control the species listed in "Weeds Controlled" and "Brush Species Controlled" section of this label. Apply 2.23 to 8.93 fl. oz. per acre to control the species indicated, including kudzu.

Tank Mix Combinations

For broader spectrum control, the following products are recommended in combination with MSM 250D.

Arsenal® Applicator's Concentrate

Tank mix 2.23 to 4.47 fl. oz. of MSM 250D with 8 to 16 fluid ounces of Arsenal® Applicator's Concentrate per acre for application to loblolly pine. Refer to the Arsenal® Applicator's Concentrate label regarding the use of surfactants and the appropriate application timing with respect to the age and development stage of the pines. This combination controls ash, black gum, cherry, hawthorn,

honeysuckle, hophornbean, oaks (red, white and water), sassafras, sweetgum, Vaccinium species and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, persimmon, and red maple.

VELPAR® L or VELPAR® DF

Tank mix 2.23 to 4.47 fl. oz. of MSM 250D with VELPAR® L or VELPAR® DF at the rates specified on the container for various soil textures. This combination may be applied to loblolly and slash pines.

Release

Herbaceous Weed Control

MSM 250D may be applied to transplanted loblolly and slash pine for the control of herbaceous competition. Consult the "Weeds Controlled" for a listing of the susceptible species and specified application rates. Best results are obtained when MSM 250D is applied just before weed emergence until shortly after weed emergence.

Tank Mix Combinations

For broader spectrum control, the following products are recommended in combination with MSM 250D.

Arsenal® Applicators Concentrate

Tank mix 1.12 to 2.23 fl. oz. of MSM 250D with 4 fluid ounces of Arsenal® Applicators Concentrate per acre. The tank mix may be used on loblolly pine.

OUST® XP

Tank mix 1.12 to 3.35 fl. oz. of MSM 250D with 2 to 3 ounces of OUST® XP per acre. Best results are obtained when MSM 250D is applied just before weed emergence until shortly after weed emergence. This tank mix may be used on loblolly and slash pine.

VELPAR® L or VELPAR® DF

Tank mix 1.12 to 2.23 fl. oz. of MSM 250D with VELPAR® L or VELPAR® OF at the rates specified on the container for various soil textures. This combination may be applied to loblolly and slash pines.

IMPORTANT RESTRICTIONS—CONIFER PLANTATIONS ONLY

- Do not apply MSM 250D to conifers grown as ornamentals.

IMPORTANT PRECAUTIONS—CONIFER PLANTATIONS ONLY

- Applications of MSM 250D made to conifers that are suffering from loss of vigor caused by insects, disease, drought, winter damage, animal damage, excessive soil moisture, planting shock or other stresses may injure or kill the trees.
- Applications of MSM 250D made for herbaceous release should only be made after adequate rainfall has closed the planting slit and settled the soil around the roots following transplanting.
- MSM 250D applications may result in damage and mortality to other species of conifers when they are present on sites with those listed in the preceding section for conifer plantations.

HARDWOOD PLANTATIONS**Application Information**

MSM 250D is specified at rates of up to 4.47 fl. oz. per acre for the control of many weed species on sites where yellow poplar is growing or is to be planted, and on sites where red alder is to be planted. Apply by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" section of this label for a listing of susceptible species.

Application Timing

MSM 250D may be applied as a site preparation treatment prior to planting red alder or yellow poplar. As a prior to planting site preparation treatment for red alder, MSM 250D may be tank mixed with other Herbicides labeled for this use.

MSM 250D may also be applied over-the-top of planted yellow poplar seedlings after the soil has settled around the root system, but before the seedlings have broken dormancy (prior to bud break).

Release

Herbaceous Weed Control

MSM 250D may be applied to yellow poplar for the control of herbaceous competition. Consult the "Weeds Controlled" for a listing of the susceptible species and specified application rates. Best results are obtained when MSM 250D is applied just before weed emergence until shortly after weed emergence.

Tank Mix Combinations

Tank mix 1.12 fl. oz. of MSM 250D with 4 to 6 pints of VELPAR® L as specified on the package label for "RELEASE — HERBACEOUS WEED CONTROL" in pine plantations in the eastern U.S. Follow the VELPAR® L label recommendations regarding altering the application rate by soil texture.

IMPORTANT PRECAUTIONS—HARDWOOD PLANTATIONS ONLY

- Application of VELPAR® L and MSM 250D made to yellow poplar that are suffering from loss of vigor caused by insects, disease, drought, winter damage, animal damage, excessive soil moisture, planting shock or other stresses may injure or kill the seedlings.

- Applications of MSM 250D made for release should only be made after adequate rainfall has closed the planting slit and settled the soil around the roots following transplanting.
- The use of surfactant is not recommended for applications made over the tops of trees.
- Careful consideration must be given by an experienced and knowledgeable forester to match the requirements of yellow poplar and/or red alder to conditions of the site. Treatment of yellow poplar and/or red alder planted on a site inadequate to meet its requirements may injure or kill the seedlings.

NON-AGRICULTURAL USES

WEEDS CONTROLLED

0.74 to 1.12 FL. OZ. PER ACRE

Annual sow thistle	Goldenrod
Aster	Lambsquarters
Bahiagrass	Marestail/ horseweed****
Beebalm	Maximillion sunflower
Bittercress	Miners lettuce
Bitter sneezeweed	Pennsylvania smartweed
Blackeyed Susan	Plains coreopsis
Blue mustard	Plantain
Bur buttercup	Redroot pigweed
Chicory	Redstem filaree
Clover	Rough fleabane

0.74 to 1.12 FL. OZ. PER ACRE

Cocklebur	Shepherdspurse
Common chickweed	Silky crazyweed
Common groundsel	(locoweed)
Common purslane	Smallseed falseflax
Common yarrow	Smooth pigweed
Conical catchfly	Sweet clover
Corn cockle	Tansymustard
Cow cockle	Treacle mustard
Crown vetch	Tumble mustard
Dandelion	Wild carrot
Dogfennel	Wild garlic
False chamomile	Wild lettuce
Fiddleneck tarweed	Wild mustard
Field pennycress	Wooly Croton
Flixweed	Wood sorrel
	Yankeeweed

1.12 to 2.23 FL. OZ. PER ACRE

Blackberry	Honeysuckle
Black henbane	Multiflora rose and other wild roses
Broom snakeweed	Musk thistle***
Buckhorn plantain	Oxeye daisy
Bull thistle	Plumeless thistle
Common crupina	Prostrate knotweed
Common sunflower	Rosering gaillardia
Curly dock	Seaside arrowgrass
Dewberry	Sericea lespedeza
Dyer's woad	Tansy ragwort
Gorse	Teasel
Halogeton	Wild caraway
Henbit	

2.23 to 4.47 FL. OZ. PER ACRE

Common mullein	Purple scabious
Common tansy	Scotch thistle
Field bindweed**	Scouringrush
Greasewood	Salsify
Gumweed	Snowberry
Houndstongue	St. Johnswort
Lupine	Sulphur cinquefoil
Old world climbing fern (Lygodium)	Western salsify
Perennial pepperwood	Whitetop (hoary cress)
Poison hemlock	Wild iris
Purple loosestrife	

3.35 to 4.47 FL. OZ. PER ACRE

Canada thistle**
Dalmation toadflax**
Duncecap larkspur
Russian knapweed**
Tall larkspur
Wild parsnip
Yellow toadflax**

**6.7 to 8.93 FL. OZ.
PER ACRE**

Kudzu

*Apply fall through spring.

** Suppression, which is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. Apply as a full coverage spray for best performance.

*** Certain biotypes of musk thistle are more sensitive to MSM 250D and may be controlled with rates of 0.56 to 1.12 fl. oz. per acre. Treatments of MSM 250D may be applied from rosette through bloom stages of development.

**** Certain biotypes of maretail/horsetail are less sensitive to MSM 250D and may be controlled by tank mixes with Herbicides with a different mode of action.

Problem Weed Control

For broader spectrum control and for use on certain biotypes of broadleaf weeds, which may be resistant to MSM 250D and Herbicides with the same mode of action, the following tank mixes are recommended.

Dicamba + 2,4-D

Weed	Rate of MSM 250D (fl. oz./ acre)	Rate of Dicamba 4 lb. DMA (fl. oz./ acre)	Rate of 2,4-D 4 lb. DMA (fl. oz./ acre)
Kochia control	1.12	8	16
Spotted knapweed Control	1.12	8	16
Rush skeleton weed Suppression	2.23	8	16

NON-CROP (INDUSTRIAL) SITES

Application Information

MSM 250D is used for general weed control on private, public and military lands as follows: Uncultivated areas (such as airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas – non-crop producing (such as farmyards, fuel storage areas, fence rows, soil bank land, barrier strips, etc.); industrial sites – outdoor (such as lumberyards, pipeline and tank farms, etc.). It is

also used for the control of certain noxious and troublesome weeds.

Consult the "Weeds Controlled" and "Brush Species Controlled" tables to determine the appropriate application rate.

MSM 250D may be applied in tank mixture with other Herbicides labeled for use on non-crop sites. Fully read the labels and follow all the directions and restrictions on each label.

Application Timing

For best results, MSM 250D should be applied postemergence to young, actively growing weeds. Applications may be made at any time of the year, except when the ground is frozen.

GRASS REPLANT INTERVALS

Following an application of MSM 250D to non-crop areas, the treated sites may be replanted with various species of grasses at the intervals listed below.

For soils with a pH of 7.5 or less observe the following replant intervals:

Species	Rate (fl. oz./acre)	Replant Interval (months)
Brome, Meadow	1.12 – 2.23	2
	2.23 – 4.47	3
Brome, Smooth	1.12 – 2.23	2
	2.23 – 4.47	4
Fescue, Alta	1.12 – 2.23	2
	2.23 – 4.47	4
Fescue, Red	1.12 – 2.23	2
	2.23 – 4.47	4
Fescue, Sheep	1.12 – 2.23	1
	2.23 – 4.47	4
Foxtail, Meadow	1.12 – 2.23	2
	2.23 – 4.47	4
Green Needlegrass	1.12 – 4.47	1
Orchard grass	1.12 – 2.23	2
	2.23 – 4.47	4
Russian Wild rye	1.12 – 2.23	1
	2.23	2
	4.47	3
Switch grass	1.12 – 2.23	1
	2.23 – 4.47	3
Timothy	1.12 – 2.23	2
	2.23 – 4.47	4
Wheatgrass, Western	1.12 – 2.23	2
	2.23 – 4.47	3

For soils with a pH of 7.5 or greater observe the following replant intervals:

Species	Rate (fl. oz./acre)	Replant Interval (months)
Alkali Sacaton	1.12 – 2.23	1
	2.23 – 4.47	3
Bluestem, Big	1.12 – 4.47	3
Brome, Mountain	1.12 – 2.23	1
	2.23 – 4.47	2
Gramma, Blue	2.23 – 4.47	1
Gramma, Sideoats	1.12	2
	>1.12	>3
Switch grass	1.12	2
	>1.12	>3
Wheatgrass, Thickspike	2.23 – 4.47	1
Wheatgrass, Western	2.23 – 4.47	2
	1.12 – 2.23	3

The specified intervals are for applications made in the spring to early summer. Because MSM 250D degradation is slowed by cold or frozen soils, applications made in the late summer or fall should consider the intervals as beginning in the spring following treatment.

Testing has indicated that there is considerable variation in response among the species of grasses when seeded into areas treated with MSM 250D. If species other than those listed above are to be planted into areas treated with MSM 250D, a field bioassay should be performed, or previous experience may be used, to determine the feasibility of replanting treated sites.

TURF, INDUSTRIAL (UNIMPROVED ONLY)

Application information

MSM 250D is used for selective weed control in unimproved industrial turf where certain grasses are well established and desired as ground cover. MSM 250D is also used for the control of certain noxious and troublesome weeds in turf.

In addition to conventional spray equipment, MSM 250D may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of MSM 250D in the water phase.

Consult the "Weeds Controlled" table to determine which weeds will be controlled by the following application rates.

Turf Type	Rate of MSM 250D HERBICIDE fl. oz./acre
Fescue and Bluegrass	0.56 to 1.12
Crested Wheatgrass and Smooth Brome ^{1/4}	0.56 to 2.23
Bermudagrass	0.56 to 4.47

Application Timing

Applications may be made at any time of the year, except when the soil is frozen.

When a spring application is made on fescue or bluegrass, a second application may be made during the summer after full seedhead maturation.

Growth Suppression and Seedhead Inhibition (Chemical Mowing)

Application Information

MSM 250D is used for growth suppression and seedhead inhibition in well-established fescue and bluegrass turf at the use rate of 0.56 to 1.12 fl. oz. per acre.

Tank Mix Combination

MSM 250D may be tank mixed with Embark® for improved performance in the regulation of growth and seedhead suppression. Tank mix 0.56 to 1.12 fl. oz. of MSM 250D with 1/8 to ¼ pint of Embark.

Application Timing

Application may be made after at least 2 to 3 inches of new growth has emerged until the appearance of the seed stalk.

Fescue Precautions

MSM 250D may temporarily stunt tall fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms:

- Do not use more than 0.89 fl. oz. per acre of MSM 250D.
- Tank mix MSM 250D with 2,4-D.
- Use the lowest specified rate for target weeds.
- Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution.
- Make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall.
- Do not use a surfactant when liquid nitrogen is used as a carrier.
- Do not use a spray adjuvant other than non-ionic surfactant.
- The yields from the first cutting may be reduced due to seedhead suppression resulting from treatment with MSM 250D.

IMPORTANT RESTRICTION—INDUSTRIAL TURF ONLY

- Do not use MSM 250D on bahiagrass.

IMPORTANT PRECAUTIONS—INDUSTRIAL TURF ONLY

- An application of MSM 250D may cause temporary discoloration (chlorosis) of the grasses. Use the lower specified rates for minimum discoloration.
- With fescue and bluegrass, sequential applications made during the same or consecutive growth period (i.e., spring and fall) may result in excessive injury to turf.
- Excessive injury may result when MSM 250D is applied to turf that is under stress from drought, insects, disease, cold temperatures (winter injury) or poor fertility.

NATIVE GRASSES

MSM 250D is used for weed control and suppression in the establishment and maintenance of native grasses. It may be used where blue grama, bluestems (big, little, plains, sand, ww spar) bromegrasses (meadow), buffalograss, green sprangletop, indiagrass, kleingrass, lovegrasses (atherstone, sand, weeping, wilman), orchardgrass, sideoats grama, switchgrass (Blackwell), wheatgrass (bluebunch, intermediate, pubescent, Siberian, slender streamband, tall, thickspike, western), and Russian wildrye are established. It may also be applied over these species in the seedling stage, except for orchardgrass and Russian wildrye.

Application Information

Apply MSM 250D at the rate of 0.22 fl. oz. per acre for the control and suppression* of

bur buttercup (testiculate), common purslane, common sunflower*, cutleaf evening primrose*, flixweed*, lambsquarters* (common and slimleaf), maretail*, pigweed (redroot and tumble), snow speedwell, tansymustard* and tumble mustard (Jim Hill mustard).

*Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. Degree of suppression will vary with the size of weed and environmental conditions following treatment.

Application Timing

For established grasses, apply when weeds are in the seedling stage.

For grasses in the seedling stage, apply preplant or preemergence where the soil (seedbed) has been cultivated.

IMPORTANT PRECAUTIONS—NATIVE GRASSES

Grass species or varieties may differ in their response to various Herbicides. Consult with your state experimental station, university, or extension agent as to sensitivity to any Herbicide. If no information is available, limit the initial use of MSM 250D to a small area. Components in a grass seed mixture will vary in tolerance to MSM 250D, so the final stand may not reflect the seed ratio.

MSM 250D should not be applied to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, disease, or insect damage as grass injury may result. Severe winter stress drought, disease, or insect damage before or following application also may result in grass injury.

BRUSH CONTROL

Application Information

MSM 250D is used for the control of undesirable brush growing in non-crop areas. Applications may be made by air, high volume ground application, low volume ground application, and ultra-low volume ground application. Except as noted for multiflora rose, MSM 250D should be applied as a spray to the foliage.

The application volume required will vary with the height and density of the brush and the application equipment used. Generally, aerial applications will require 15 to 25 gallons of water per acre; high volume ground application will require 100 to 400 gallons of water per acre; and low volume ground application will require 20 to 50 gallons of water per acre; and ultra-low volume ground application will require 10 to 20 gallons of water per acre.

Regardless of application volume and equipment used, thorough coverage of the foliage, particularly the terminal growing points, is necessary to optimize results.

BRUSH SPECIES CONTROLLED

Species	High-Volume Rate (fl. oz./100 gallons)	Broadcast Rate (fl. oz./ acre)
Ash	2.23 – 4.47	2.23 – 6.7
Aspen	2.23 – 4.47	2.23 – 6.7
Black Locust	2.23 – 4.47	2.23 – 6.7
Blackberry	2.23 – 4.47	2.23 – 6.7
Camelthorn	2.23 – 4.47	2.23 – 6.7
Cherry	2.23 – 4.47	2.23 – 6.7
Cottonwood	2.23 – 4.47	4.47 – 6.7
Eastern Red Cedar	2.23 – 4.47	4.47 – 6.7
Elder	2.23 – 4.47	4.47 – 6.7
Elm	2.23 – 4.47	2.23 – 6.7
Firs	6.7	2.23 – 4.47
Hawthorn	2.23 – 4.47	2.23 – 6.7
Honeysuckle	2.23 – 4.47	1.12 – 2.23
Mulberry	2.23 – 4.47	4.47 – 6.7
Multiflora Rose	2.23 – 4.47	2.23 – 6.7
Muscadine (Wild Grape)	2.23 – 4.47	4.47 – 6.7
Oaks	2.23 – 4.47	2.23 – 6.7
Ocean Spray (<i>Holodiscus</i>)	2.23 – 4.47	4.47 – 6.7
Osage Orange	2.23 – 4.47	4.47 – 6.7
Red Maple	2.23 – 4.47	4.47 – 6.7
Salmonberry	1.12 – 2.23	2.23 – 6.7
Snowberry	1.12 – 2.23	2.23 – 6.7

Spruce (Black & White)	6.7	4.47 – 6.7
Thimbleberry	1.12 – 2.23	2.23 – 6.7
Tree of Heaven (<i>Ailanthus</i>)	2.23 – 4.47	2.23 – 4.47
Tulip Tree	1.12 – 2.23	2.23 – 6.7
Wild Roses	1.12 – 2.23	2.23 – 6.7
Willow	1.12 – 2.23	2.23 – 6.7

For low volume and ultra-low volume ground applications, mix 8.93 to 17.86 fl. oz. of MSM 250D per 100 gallons of spray solution.

Application Timing

Make a foliar application of the specified rate of MSM 250D during the period of full leaf expansion in the spring until the development of full fall coloration on the deciduous species to be controlled. Coniferous species may be treated at anytime during the growing season.

Tank Mix Combinations

MSM 250D may be tank mixed with any product labeled for noncrop brush control at the application rates specified on the companion product's label for the pests specified on the product's companion label. Read and follow the label instructions of both products when tank mixing. Follow the most restrictive limitations of any of the products labels being tank mixed.

Accord²

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of MSM 250D with the rate of Accord indicated for the various application methods on the Accord label. Refer to the Accord label for the list of species controlled.

Arsenal® herbicide

Combine 2.23 to 4.47 fl. oz. of MSM 250D with 1 to 4 pints of Arsenal® herbicide per acre and apply as a broadcast spray. Aerial applications should use a minimum of 15 gallons per acre spray volume. In addition to species listed above controlled by MSM 250D, this combination controls black gum, hophornbean, sassafras, sweetgum, Vaccinium species, dogwood, myrtle dahoon, hickories, and persimmon.

Garlon⁴ 3A or Garlon 4 (or generic equivalents)

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of MSM 250D with the rate of Garlon indicated for the various application methods on the Garlon label. Refer to the Garlon label for the list of species controlled.

Krenite® S

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of MSM 250D with the rate of Krenite S indicated for the various application methods on the Krenite S. Refer to the Krenite S label for the list of species controlled.

Picloram (such as Tordon® K)⁵

After consulting the "Brush Species Controlled" table, tank mix the prescribed rate of MSM 250D with the rate of Tordon K indicated for the various application methods on the Tordon K label. Refer to the Accord label for the list of species controlled.

Picloram (such as Tordon® K) + Arsenal® herbicide

Combine 2.23 to 3.35 fl. oz. of MSM 250D with 2 to 8 fluid ounces of Arsenal® and 1 to 2 pints of Tordon® K per 100 gallons of water. Apply as a high volume spray. This tank mix controls cherry, elms, box elder, maples, hackberry redbud ash, oaks (including shingle oak), black locust and sassafras.

Tordon® K is a restricted use pesticide.

Spotgun Basal Soil Treatment

For control of multiflora rose, prepare a spray suspension of MSM 250D by mixing 2.23 fl. oz. per gallon of water. Mix vigorously until the MSM 250D is dispersed and agitate periodically while applying the spray suspension.

Apply the spray preparation with an exact delivery handgun applicator. Apply at the rate of 4 milliliters for each 2 feet of rose canopy diameter. Direct the treatment to the soil within 2 feet of stem union. When treating large plants and more than one delivery is required, make applications on opposite sides of the plant.

Applications should be made from early spring to summer.

IMPORTANT PRECAUTIONS—NON-CROP BRUSH CONTROL

When using tank mixtures of MSM 250D with companion Herbicides, read and follow all the use instructions, application rates, warnings and precautions appearing on the labels. Follow the most restrictive label instruction for each of the herbicides used.

**ORNAMENTAL TURF SUCH AS LAWNS, PARKS, CEMETERIES, AND GOLF COURSES
(FAIRWAYS, APRONS, TEES AND ROUGHS) – NON AGRICULTURAL USE
SOD FARMS – AGRICULTURAL USE**

MSM 250D controls the following perennial and annual weedy grasses:

Bahiagrass

Foxtail

Ryegrass

Controls the following broadleaf (dicot) weeds:

Annual Sowthistle

Crown Vetch

Redroot Pigweed

Aster

Curly Dock

Redstem Filaree

Bittercress

Dandelion

Shepherdspurse

Blue Mustard

Dog Fennel

Smallseed Flaxweed

Buckhorn

False Chamomile

Smooth Pigweed

Bur Buttercup

Fiddleneck Tarweed

Spurge (prostrate)

Canada Thistle

Field Pennycress

Sweet Clover

Carolina Geranium

Flixweed

Tansy Mustard

Chicory

Goldenrod

Treacle Mustard

Clover (white)	Henbit	Tumble Mustard
Common Chickweed	Hoary Cress (whitetop)	Virginia Buttonweed
Common Groundsel	Kochia	Wild Carrot
Common Mullein	Lambsquarters	Wild Celery
Common Purslane	Miners Lettuce	Wild Garlic
Common Sunflower	Pennsylvania Smartweed	Wild Lettuce
Common Yarrow	Plantain	Wild Mustard
Conical Catchfly Cow	Prickly Lettuce	Wild Onion
Cockle	Prostrate Knotweed	Wood Sorrel (<i>oxalis</i>)

For use only on Kentucky Bluegrass, Fine Fescue, Bermudagrass, Centipede grass, Zoysiagrass (Meyers and Emerald) and St. Augustinegrass turf areas.

IMPORTANT RESTRICTIONS—TURF, GOLF COURSES AND SOD FARMS

- **DO NOT USE ON FOOD OR FEED CROPS.**
- Do not apply MSM 250D (except as specified) or drain or flush equipment on or near desirable trees or other plants.

- Do not apply on areas where roots may extend or in locations where the chemical may be washed or moved into contact with their roots.
- Do not allow spray drift onto adjacent crops or other desirable plants or trees as injury may occur.
- Do not apply to any body of water including streams, irrigation water or wells.
- Do not apply where runoff water may flow onto agricultural land, as injury to crops may result.
- Do not apply MSM 250D to turf under stress from drought, insects, disease, cold temperatures, high temperatures of above 85°F on cool season grasses, or poor fertility as injury may result.
- Do not apply to turf less than 1 year old.
- Do not use on bahiagrass where it is the desired turf, as severe injury may result.
- Do not plant ornamentals such as shrubs, and trees in treated areas for at least last application, or bedding plants for at least 2 years.

IMPORTANT PRECAUTIONS—TURF, GOLF COURSES AND SOD FARMS

- Use lower rates for minimum chlorosis of the turf.
- Allow one week between the application of MSM 250D and other control (pesticide containing) products. (This guideline can be relaxed where severe insect or disease attack requires immediate treatment).
- When overseeding, wait 2 months (8 weeks) after application.

Follow these practices to minimize drift:

- Stop spraying if wind speed becomes excessive. Spray drift can occur at wind speeds less than 10 mph. If sensitive plants are downwind, extreme caution must be used. Do not spray if winds are gusty.

- High temperatures, drought and low relative humidity increase the possibility of harmful spray drift. Caution must be used when these conditions are present and sensitive plants are nearby.
- Use large droplet size sprays to minimize drift.
- Use spray pressures of 35 psi or less when applying this product.

IMPORTANT

Add a nonionic surfactant containing a minimum of 80% of constituents that are effective as a spray adjuvant at 0.25 percent v/v (1 qt/gal) provides maximum performance, but may temporarily increase chlorosis of the turf.

When an adjuvant is to be used with this product, Control Solutions suggests the use of a Chemical Producers and Distributors Association certified adjuvant.

HOW TO USE

Use spray volumes of 20 to 80 gal/acre and pressures of 25 to 35 psi at the following rates of MSM 250D for the weeds listed below:

0.28 to 0.56 FL. OZ. PER ACRE

Ryegrass (greens)

0.56 to 0.74 FL. OZ. PER ACRE

Bittercress	Dandelion
Blue Mustard Bur	Field Pennycress
Buttercup	Ground Ivy (Fall)
Chickweed	Parsley-piert
Chicory	Prostrate Spurge
Clover (white)	Redstem Filaree
Creeping Beggarweed	Spurweed
	Wild Carrot

0.74 to 1.12 FL. OZ. PER ACRE

Annual Sowthistle Aster	Seedling Dogfennel
Carolina Geranium	Shepherdspurse
Common Yarrow	Smooth Pigweed
Crown Vetch	Smallseed Falseflax
Florida Betony	Sweet Clover
Ground Ivy (Spring●)	Tansy Murat
Henbit	Treacle Mustard:
Lambsquarters	Tumble Mustard
Lespedeza	Wild Celery
Miners Lettuce	Wild Garlic
Plantain	Wild Lettuce
Prickly Lettuce	Wild Onion
Ragweed	Woodsorrels (oxalis)
Redroot Pigweed	
Ryegrass (fairways)	

0.56 to 1.67 FL. OZ. PER ACRE

Bahiagrass*

1.12 to 2.23 FL. OZ. PER ACRE

Brazil Parsley	Florida Pusley
Buckhorn Plantain	Foxtail
Canada Thistle**	Hoarycross (whitetop)
Curly Dock	Kochia
Common Groundsel	Pennsylvania
Common Purslane	Smartweed
Common Sunflower	Plantain
Crabgrass	Prostrate Knotweed
Dogfennel	Sida (southern)
Dollarweed*	Virginia Buttonweed***
	Wild Mustard

- * A repeat application may be required in 4 to 6 weeks.
- ** Suppression only involving a visual reduction in competition compared to an untreated area.
- *** Controls seedling Virginia Buttonweed. Suppression only of more mature plants. Repeat application may be required in 4 to 6 weeks.

The required amount of MSM 250D should be added when the spray tank is half full of water and, with agitator running, add the proper amount of product. Finish adding the required amount of water. Continuous agitation is required to keep the product in suspension.

Spray preparations of this product may degrade in acid solutions if not used in 24 hours; it is stable in alkaline solutions. Thoroughly reagituate before using.

Tank mixes with other registered Herbicides should be tested for compatibility before full scale mixing. Use mechanical or bypass agitation to thoroughly mix the spray suspension. It is not necessary to premix this product with water in a separate container prior to adding it to the spray tank. This product should always be added to the tank first, before any other Herbicides or adjuvants.

Kentucky Bluegrass and Fine Fescue: Apply 0.56 to 1.12 fl. oz. of MSM 250D per acre for control of the listed weeds. Do not exceed 1.12 fl. oz. per acre within a 9-months period. St. Augustinegrass, Bermudagrass and Zoysiagrass (Meyers and Emerald): Apply 0.56 to 2.23 fl. oz. MSM 250D per acre for weed control. Some chlorosis or stunting of turfgrass may occur following application.

Bahiagrass Control: For the selective control of Bahiagrass in Bermudagrass turf, use 0.56 to

1.67 fl. oz. of MSM 250D per acre. Use the higher rates of the range on Argentine, Common and Paraguayan Bahiagrass. Apply a repeat treatment in 4 to 6 weeks if necessary. Some chlorosis or stunting of the Bermudagrass may occur following the application.

Centipedegrass: Apply 0.56 to 1.12 fl. oz. of this product per acre for weed control. Some chlorosis or stunting of the turfgrass may occur following the application.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store product in original container only. Store in cool, dry place.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product must be disposed of on site or at an approved waste facility.

CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying.

Nonrefillable Containers 5 gallons or less: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. 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.

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