



Tupersan®

HERBICIDE WETTABLE POWDER

For control of certain annual weed grasses in turf

Group 7 Herbicide

ACTIVE INGREDIENT:	% By Wt.
Siduron [1-(2-methylcyclohexyl)-3-phenylurea]	50.0%
OTHER INGREDIENTS:	50.0%
	TOTAL 100.0%

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 minutes. • Call a poison control center or doctor for treatment advice.
IF IN EYES:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment.	
FOR MEDICAL EMERGENCIES INVOLVING THIS PRODUCT CALL TOLL FREE 1-888-478-0798.	



**READ THE ENTIRE LABEL FIRST.
OBSERVE ALL PRECAUTIONS AND
FOLLOW DIRECTIONS CAREFULLY.**

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, and clothing. Avoid breathing dust.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate and butyl rubber ≥ 14 mils. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

All mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves,
- Shoes plus socks,

In addition, for chemigation: All mixers and loaders must wear:

NIOSH-approved dust/mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any N, R, P, or HE filter.

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.

Discard clothing and absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

USER SAFETY RECOMMENDATIONS

Users should:

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

ENVIRONMENTAL HAZARDS

This product is toxic to fish and aquatic invertebrates. 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 is likely to occur. Do not contaminate water when disposing of equipment washwaters or rinsate.

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 responsible for pesticide regulation.

SPRAY EQUIPMENT AND SPRAY PREPARATION

Conventional ground sprayers equipped with same nozzle types at equal spacings can provide uniform broadcast applications. Pressurized spray gun equipment, backpack sprayers, boom sprayers, and other hand-operated sprayers are suitable for spot treatments or small areas to be treated. Tupersan Herbicide can also be mixed with seed, fertilizer, and mulch and applied to roadside slopes and other areas with a hydraulic seeder or hydroseeder.

Check the spray tank and equipment for cleanliness before preparing the spray solution. Calibrate the sprayer before use.

Use screens to protect the pump and to prevent the nozzles from clogging. Use 50 mesh or coarser screens at the nozzles.

Mix Tupersan Herbicide with water.

1. Fill the spray tank with ½ to ¾ of the required amount of water and begin agitation. Sufficient agitation during mixing and application is essential.
2. Add Tupersan Herbicide directly from the bag into the tank.
3. Fill the spray tank to ¾ of the required amount of water. If tank mixtures are being prepared, add the companion product when the spray tank is approximately ¾ full and the Tupersan Herbicide is fully dispersed. Soluble concentrates, flowables, suspensions, and emulsifiable concentrates should be added after Tupersan Herbicide is fully suspended.
4. Finally, add the balance of the required water volume and maintain agitation prior to and during the application.
5. Do not mix Tupersan Herbicide with any product that prohibits such mixing. Do not exceed label application rate and the most restrictive label precautions and limitations must be followed. Refer to the tank mix product label(s) for further information.

SPRAY VOLUME AND PRESSURE: A spray volume range of 20 - 200 gallons per acre can be used. Or, spray volumes of 0.5 - 5.0 gallons per 1,000 sq. ft. can provide adequate distribution. Spray pressures should be matched with the spray equipment and nozzle types. Check the recommendations provided by equipment manufacturer.

SPRAY DRIFT RESTRICTIONS

Wind Direction and Speed

Do not apply when the wind speed exceeds 10 miles per hour at the application site.

Temperature Inversion

Do not apply into a temperature inversion or under stable atmospheric conditions.

Droplet Size

Apply as a medium or coarser spray (ASABE standard 572).

Release Height

Do not apply with a nozzle height of greater than 4 feet above the ground or crop canopy.

RESTRICTIONS

Do not apply to crops used for food or feed purposes.

Aerial application is prohibited.

Non-target plants can be adversely affected by this product.

Tupersan Herbicide must be used only in accordance with directions on this label.

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 interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is:

- Coveralls
- Chemical-resistant gloves, made out of any waterproof material
- Shoes plus socks

SOD FARMS AND GRASS SEED PRODUCTION

Tupersan® Herbicide is a selective preemergent herbicide for the control of certain annual weed grasses in turf grown for grass seed and sod production. Tupersan Herbicide may be applied at time of seeding without causing injury to germinating seeds of many common temperate region grasses. Tupersan Herbicide is highly effective for the control of smooth crabgrass, large crabgrass, downy brome, and foxtails. Tupersan Herbicide may be used on established turf.

Tupersan Herbicide may be applied to the soil before the emergence of weeds and will control susceptible weed seedlings for an extended period. At seeding, preemergent applications of Tupersan Herbicide are made after planting but before the emergence of the grass seedlings.

Soil adsorption of siduron increases with higher levels of organic matter and/or higher clay contents. Soils with high organic matter levels require higher dosage rates than soils with low organic matter for equal performance. Also, soil textures with high clay content require higher dosage rates than soil textures with low clay content for equal performance.

Water is required to activate the herbicide following preemergent applications to the soil. Rainfall or irrigation (≥ ½ to 1 inch) must be provided within three (3) days to optimize the weed control.

Application rates of Tupersan Herbicide for sod farms and grass seed crops are presented in Table 1.

Table 1. Application Rates of Tupersan Herbicide for Sod Farms and Grass Seed Production (Not For use on Sod Farms or Grass Seed Production in AZ)

Turf Species	Application Schedule	Amount of Product Pounds/Acre
Cool Season Grasses • Bentgrass, Creeping • Bentgrass, Colonial • Fescue, Tall and Turf Types • Kentucky Bluegrass • Perennial Ryegrass • Mixtures of Kentucky Bluegrass, Perennial Ryegrass, and Fescues • Smooth Bromegrass • Orchardgrass • Reed Canarygrass		
At Seeding	Single	4 to 12 lb./Acre
	Sequential	6 to 12 lb./Acre plus 4 to 6 lb./Acre
Fall Plantings and Established Turf	Single	16 to 24 lb./Acre

NEWLY SEEDED AREAS: Apply this product to grass seedlings after the onset of tillering and after the grass seedlings have developed an adequate secondary root system. Usually, five to six leaves of the grass seedlings are visible when the first tiller appears.

ESTABLISHED GRASS STANDS: Apply this product in the spring and fall for grasses that have been planted for one or more seasons.

USE IN CHEMIGATION SYSTEMS

FOR COOL SEASON GRASS GROWN FOR SEED AND SOD PRODUCTION

Types of Irrigation Systems: Apply Tupersan Herbicide only through sprinkler (including center pivot, lateral move, side roll, overhead solid set) irrigation systems. Do not apply Tupersan Herbicide through any other type of irrigation system.

DIRECTIONS FOR SPRINKLER IRRIGATION SYSTEMS

Uniform Water Distribution and System Calibration: The irrigation system must provide uniform distribution of treated water. Turfgrass injury, lack of effectiveness can result from nonuniform distribution of treated water.

The system must be calibrated to uniformly apply the rates specified for chemigation application for specific crops. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Chemigation Monitoring: A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Drift: Do not apply when wind speed favors drift beyond the area intended for treatment.

Apply the pesticide continuously for the duration of the water application.

The system must be free of leaks and clogged nozzles.

REQUIRED SYSTEM SAFETY DEVICES

The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

USING WATER FROM PUBLIC WATER SYSTEMS

DO NOT APPLY TUPERSAN HERBICIDE THROUGH ANY IRRIGATION SYSTEM PHYSICALLY CONNECTED TO A PUBLIC WATER SYSTEM. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Tupersan Herbicide may be applied though any of the recommended types of irrigation systems which may be supplied by a public water system only if the water from the public water system is discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. Before beginning chemigation, always make sure that the air gap exists and that there is no blockage of the overflow of the reservoir tank. Any irrigation system using water supplied from a public water system must also meet the following requirements:

The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

AGITATION

For application of Tupersan Herbicide, a chemical supply tank is necessary for premixing since Tupersan Herbicide needs to be mixed with water to ensure a uniform solution for injecting into the irrigation line. Constant strong mechanical or hydraulic agitation must be maintained in the chemical supply tank during the entire period of application.

DILUTION OF TUPERSAN HERBICIDE IN SUPPLY TANK

Because a chemical supply tank is used, you must determine the required amount of Tupersan Herbicide and water to mix in the tank. For application by chemigation, do not mix Tupersan Herbicide with other crop protection products or fertilizers.

The amount of Tupersan Herbicide needed equals the number of pounds of Tupersan Herbicide to be applied per acre multiplied by the number of acres to be chemigated. Refer to Table 1 for the application rates of Tupersan[®] Herbicide for sod farms and grass seed crops.

The amount of solution needed equals the gallons of solution delivered per hour by the injection pump multiplied by the number of hours chemigation will take place to deliver half-inch of water.

Cleaning the Chemical Injection System: In order to accurately apply pesticides, the chemical injection system must be kept clean, free from chemical or fertilizer residues and sediments. Refer to your owner's manual or ask your equipment supplier for the cleaning procedure for your injection system.

Flushing the Irrigation System: At the end of the application period, allow time for all lines to flush the pesticide through all nozzles before turning off irrigation water. To ensure the lines are flushed and free of pesticides, a dye indicator may be injected into the lines to mark the end of the application period.

SPRINKLER IRRIGATION SYSTEMS

All directions and requirements listed under the **DIRECTIONS FOR SPRINKLER IRRIGATION SYSTEMS** section of this label must be followed for sprinkler irrigation systems. In addition, the following directions apply to sprinkler irrigation systems.

Do not apply when wind speed favors drift beyond the area intended for treatment.

It is recommended that nozzles in the immediate area of control panels, chemical supply tanks, pumps and system safety devices be plugged to prevent chemical contamination of these areas.

Center-Pivot and Automatic-Move Linear Systems: Inject the specified dosage per acre continuously for one complete revolution or move of the system. The system should be run at a speed that delivers a half-inch of water during the injection cycle.

Solid Set and Manually Controlled Linear Systems: Injection should be continuous over the entire irrigation period that will deliver a half-inch of water.

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 in farms, forests, nurseries or greenhouses.

REENTRY: Do not enter or allow others to enter until sprays have dried.

If watering in is required after the application, do not enter or allow others to enter the treated areas (except those involved in the watering) until the watering-in is complete and the surface is dry.

Tupersan Herbicide may be applied to the following sites and turfgrass species:

SITES:

- Golf courses (fairways, greens, tees, aprons)
- Ornamental turfgrass and lawns
- Parks
- Sport facilities
- Roadsides

TOLERANT TURF:

- Kentucky Bluegrass (*Poa pratensis*)
- Perennial Ryegrass (*Lolium perenne*)
- Tall Fescue (*Festuca arundinacea*)
- Zoysia (*Zoysia japonica*)
- Smooth Brome (*Bromus inermis*)
- Orchardgrass (*Dactylis glomerata*)
- Reed Canarygrass (*Phalaris arundinacea*)

MODERATELY TOLERANT TURF:

- Fescues (*Festuca* spp.)
 - Chewing's (*F. rubra*)
 - Hard (*F. ovina*)
 - Red (*F. rubra*)
- Colonial Bentgrass (*Agrostis tenuis*)
- Creeping Bentgrass (*Agrostis palustris*)

CREeping BENTGRASS: Most cultivars of creeping bentgrass have shown tolerance to Tupersan Herbicide, but all cultivars have not been tested for tolerance, and the response may vary with the environmental conditions and cultural practices. A tolerance test on a small area is recommended for the use of Tupersan Herbicide on other cultivars of creeping bentgrass.

WEEDS CONTROLLED:

Crabgrass (Smooth), Large Crabgrass, Foxtail (Yellow, Green and Giant), Downy Brome, and Barnyardgrass.

WEEDS NOT CONTROLLED:

Annual Bluegrass (*Poa annua*), Fall Panicum, Goosegrass, Dallisgrass, Clovers, Dandelion, Plantains, Chickweed, and other broadleaf weeds.

APPLICATION SCHEDULE AND RAINFALL/IRRIGATION

Tupersan Herbicide is a preemergent herbicide for the control of smooth and large crabgrass during the establishment of perennial cool season grasses. Spring applications should coincide with the period of maximum weed germination. Siduron forms a chemical barrier to the weeds. As the weed seeds germinate, the developing seedlings absorb the herbicide resulting in seedling death.

All summer annual grasses do not germinate at the same time. If application timing does not coincide with the normal germination period of any of the annual grass weeds listed on this label, weed control results may be erratic or poor. Sequential applications at the recommended rate can be made at 4 weeks following the initial application to provide season long control.

Soil adsorption of siduron increases with higher levels of organic matter and/or higher clay contents. Soils with high organic matter levels require higher dosage rates than soils with low organic matter for equal performance. Also, soil textures with high clay content require higher dosage rates than soil textures with low clay content for equal performance.

Rainfall or irrigation ($\geq \frac{1}{2}$ inch) must be provided within three (3) days to optimize the weed control.

Refer to Table 2 for the application rate of Tupersan Herbicide for cool season grasses at golf courses, lawns, parks, and ornamental grasses. Application rates to roadsides are presented in Table 3.

