



# Piper™

## HERBICIDE



Active Ingredient	By Wt.
Flumioxazin* . . . . .	33.5%
Pyroxasulfone** . . . . .	42.5%
Other Ingredients . . . . .	24.0%
<b>Total</b>	<b>100.0%</b>

\*2-[7-fluoro-3,4-dihydro-3-oxo-4-(2-propynyl)-2H-1,4-benzoxazin-6-yl]-4,5,6,7-tetrahydro-1H-isoindole-1,3(2H)-dione

\*\*3-[[[5-(difluoromethoxy)-1-methyl-3-(trifluoromethyl)-1H-pyrazol-4-yl]methyl]sulfonyl]-4,5-dihydro-5,5-dimethylisoxazole

Piper™ Herbicide is a water dispersible granule containing 76% active ingredient.

CAS No. 447399-55-5

EPA Reg. No. 59639-193

EPA Est. 11773-IA-01<sup>®</sup>,  
67545-AZ-01<sup>®</sup>, 39578-TX-01<sup>®</sup>

Superscript is first letter of lot number.

### KEEP OUT OF REACH OF CHILDREN CAUTION

SEE BELOW FOR ADDITIONAL  
PRECAUTIONARY STATEMENTS.

#### PRECAUTIONARY STATEMENTS

##### HAZARDS TO HUMANS & DOMESTIC ANIMALS CAUTION

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

#### 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.

**If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

**If swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

#### 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 **800-892-0099** for emergency medical treatment information.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standards (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.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE):

Some of the 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, chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride, shoes and socks.

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

### USER SAFETY RECOMMENDATIONS

Users should:

- Wash thoroughly with soap and water after handling and 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.

### ENVIRONMENTAL HAZARDS:

This product is toxic to non-target plants and aquatic invertebrates. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when disposing of equipment washwaters.

This pesticide is toxic to plants and should be used strictly in accordance with the drift and runoff precautions on this label in order to minimize off-site exposures.

**Ground Water Advisory:** This chemical has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.

**Surface Water Advisories:** Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

The product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having a high potential for reaching surface water via runoff for several months or more after application. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce potential loading of pyroxasulfone and its degradation product, 5-difluoromethoxy-1H-pyrazol-4-yl) methanesulfonic acid (M1), from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

### DIRECTIONS FOR USE

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

**READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.**

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.

### 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 Standards for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forest, nurseries, or greenhouses.

Keep all unprotected persons out of operating areas, or vicinity where there may be drift.

Do not enter or allow others to enter treated areas until sprays have dried.

### DISCLAIMER, RISKS OF USING THIS PRODUCT, LIMITED WARRANTY AND LIMITATION OF LIABILITY

**IMPORTANT: Read the entire Label including this Disclaimer, Risks of Using this Product, Limited Warranty, and Limitation of Liability before using this product. If the terms are not acceptable THEN DO NOT USE THE PRODUCT; rather, return the unopened product within 15 days of purchase for a refund of the purchase price.**

### RISKS OF USING THIS PRODUCT

The Buyer and User (referred to collectively herein as "Buyer") of this product should be aware that there are inherent unintended risks associated with the use of this product which are impossible to eliminate. These risks include, but are not limited to, injury to plants and crops to which this product is applied, lack of control of the target pests or weeds, resistance of the target pest or weeds to this product, injury caused by drift, and injury to rotational crops caused by carry-over in the soil. Such risks of crop injury, non-performance, resistance or other unintended consequences are unavoidable and may result because of such factors as weather, soil conditions, disease, moisture conditions, irrigation practices, condition of the crop at the time of application, presence of other materials either applied in the tank mix with this product or prior to application of this product, cultural practices or the manner of use or application, (or a combination of such factors) all of which are factors beyond the control of Valent U.S.A. Corporation. The Buyer should be aware that these inherent unintended risks may reduce the harvested yield of the crop in all or a portion of the treated acreage, or otherwise affect the crop such that additional care, treatment and expense are required to take the crop to harvest. If the Buyer chooses not to accept these risks, THEN THIS PRODUCT SHOULD NOT BE APPLIED. By applying this product Buyer acknowledges and accepts

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these inherent unintended risks. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER AGREES THAT ALL SUCH RISKS ASSOCIATED WITH THE APPLICATION AND USE ARE ASSUMED BY THE BUYER. Valent shall not be responsible for losses or damages (including, but not limited to, loss of yield, increased expenses of farming the crop or such incidental, consequential or special damages that may be claimed) resulting from use of this product in any manner not set forth on the label. Buyer assumes all risks associated with the use of this product in any manner or under conditions not specifically directed or approved on the label.

#### LIMITED WARRANTY

Valent warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label, under average use conditions, when used strictly in accordance with the label and **subject to the Risks of Using This Product as described above. To the extent consistent with applicable law AND AS SET FORTH ABOVE, VALENT MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED.** No agent or representative of Valent or Seller is authorized to make or create any other express or implied warranty.

#### LIMITATION OF LIABILITY

**To the extent consistent with applicable law, Valent or Seller is not liable for any incidental, consequential, indirect or special damages resulting from the use or handling of this product. The limitation includes, but is not limited to, loss of yield on all or any portion of the treated acreage, increased care, treatment or other expenses required to take the crop to harvest, increased finance charges or altered finance ratings, emotional or mental distress and/or exemplary damages. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE MAXIMUM LIABILITY OF VALENT OR SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR, AT THE ELECTION OF VALENT OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

#### PROMPT NOTICE OF CLAIM

To the extent consistent with applicable law allowing such requirements Valent must be provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty-one days from date of planting, or twenty-one days from the date of application, whichever is later, so that an immediate inspection of the affected property and growing crops can be made.

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To the extent consistent with applicable law if Buyer does not notify Valent of any claims, in such period, it shall be barred from obtaining any remedy.

#### NO AMENDMENTS

Valent and Seller offer this product, and Buyer accepts it, subject to the foregoing **Disclaimer, Risks of Using This Product, Limited Warranty and Limitation of Liability**, which may not be modified by any oral or written agreement.

#### TANK MIXES

**NOTICE: Tank mixing or use of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of user, applicator and/or application advisor, to the extent allowed by applicable law.**

Read and follow the entire label of each product to be used in the tank mix with this product.

#### RESISTANCE MANAGEMENT RECOMMENDATIONS

*Piper* Herbicide is a premix of Group 14 and Group 15 herbicides. Any weed population may contain or develop plants naturally resistant to *Piper* Herbicide and other Group 14 and/or Group 15 herbicides. Weed species with acquired resistance to Group 14 and/or Group 15 herbicides may eventually dominate the weed population if Group 14 plus Group 15 herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by *Piper* Herbicide or other Group 14 and/or Group 15 herbicides.

To delay herbicide resistance consider:

- Avoiding the consecutive use of *Piper* Herbicide or other target site of action Group 14 and/or Group 15 herbicides that might have a similar target site of action, on the same weed species.
- Using tank mixtures or premixes with herbicides from different target site of action Groups as long as the involved products are all registered for the same use, have different sites of action and are both effective at the tank mix or prepack rate on the weed(s) of concern.
- Basing herbicide use on a comprehensive Integrated Pest Management (IPM) program.
- Monitoring treated weed populations for loss of field efficacy.
- Contacting your local extension specialist, certified crop advisors and/or manufacturer for herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes.

For further information or to report suspected resistance, you may call the following toll-free number: **(800) 898-2536**

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### PRODUCT INFORMATION

*Piper* Herbicide is a preemergence and early postemergence herbicide for control of selected grass and broadleaf weeds to maintain bare ground non-crop areas.

Weeds controlled by *Piper* Herbicide are listed in Table 1, Weeds Controlled or Suppressed by Residual Activity of *Piper* Herbicide.

Preemergence weed control with *Piper* Herbicide is most effective when applied to clean, weed free soil surfaces. The most effective postemergence weed control with *Piper* Herbicide occurs when applied in combination with a surfactant to weeds less than 2 inches in height. Follow specific site use directions prior to using surfactant as certain over the top applications restrict the use of the surfactants.

### PRODUCT USE RESTRICTIONS AND PRECAUTIONS FOR NON-CROP AREAS

- Do not rotate to food or feed crops after application to bare ground or non-crop areas.
- Do not apply in enclosed greenhouse structures.
- Do not apply when weather conditions favor spray drift from treated areas.
- Do not incorporate into soil after application.
- Do not apply this product through any type of irrigation system.
- Do not apply to turfgrass.
- Do not apply to areas with adjacent non-dormant pome or stone fruit crops.
- Treatment of powdery, dry soil or light sandy soil when there is little to no likelihood of rainfall soon after may result in off target movement and possi-

ble damage to actively growing susceptible crops when soil particles are moved by wind or water. Do not apply when these soil and environmental conditions are present.

### APPLICATION INFORMATION

#### SPRAYER PREPARATION

Before applying *Piper* Herbicide, start with clean, well maintained application equipment. The spray tank, as well as all hoses and booms, must be cleaned to ensure no residue from the previous spraying operation remains in the sprayer. Some pesticides, including but not limited to, the sulfonylurea and phenoxy herbicides, are active at very small amounts and can cause crop injury when applied to susceptible crops. The spray equipment must be cleaned according to the manufacturer's directions for the last product used before the equipment is used to apply *Piper* Herbicide. Follow the most restrictive cleanup procedure if two or more products were tank mixed prior to *Piper* Herbicide application.

#### MIXING INSTRUCTIONS

1. Fill clean spray tank 1/2 to 2/3 of desired level with clean water.
2. If a drift retardant is to be used, add 10 lbs of spray grade ammonium sulfate per 100 gallons of spray solution.
3. To ensure a uniform spray mixture, pre-slurry the required amount of *Piper* Herbicide with water prior to addition to the spray tank. Use a minimum of 1 gallon of water per 10 oz of *Piper* Herbicide.
4. While agitating, slowly add the pre-slurried *Piper* Herbicide to the spray tank. Agitation should create a rippling or rolling action on the water surface.
5. If tank mixing *Piper* Herbicide with other labeled herbicides, add water soluble bags first, followed by dry formulations, flowables, emulsifiable concentrates and then solutions. Prepare no more spray mixture than is required for the immediate spray operation.
6. Add any required adjuvants.
7. Fill spray tank to desired level with water. **Agitation should continue until all spray solution has been applied.**
8. Mix only the amount of spray solution that can be applied the day of mixing. *Piper* Herbicide should be applied within 6 hours of mixing.

#### APPLICATION METHOD

*Piper* Herbicide is applied by ground or by air. Application equipment should be clean and in good repair. Nozzles should be uniformly spaced on boom and frequently checked for accuracy.

##### 1. GROUND APPLICATION

Apply *Piper* Herbicide, and *Piper* Herbicide tank mixes, with ground equipment using standard commercial sprayers equipped with flat fan (preplant or preemergence applications only) designed to deliver the desired spray pressure and spray volume.

## 2. AERIAL APPLICATION

Spray drift away from the site of application may cause damage to non-target vegetation. To minimize drift, apply the largest droplet size consistent with uniform coverage and satisfactory weed control. To obtain satisfactory application and avoid drift, the following directions must be observed:

- Do not apply during low-level inversion conditions (including fog), when winds are gusty or under other conditions that favor drift.
- Do not spray when wind velocity is less than 2 mph or more than 10 mph.
- Do not apply this product by air within 40 ft of non-target plants including non-target crops.
- Do not apply this product by air within 100 ft of emerged cotton crops.
- Do not apply this product by air within 40 ft of streams, wetlands, marshes, ponds, lakes and reservoirs.

### CARRIER VOLUME AND SPRAY PRESSURE

When used as part of a burndown weed control program, apply *Piper* Herbicide in 7 to 10 gallons of water per acre. Application at less than 7 gallons per acre may provide inadequate control. When used for preemergence weed control, apply *Piper* Herbicide in 5 to 10 gallons of water per acre. The higher gallonage applications generally afford more consistent weed control. Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

### NOZZLE SELECTION AND ORIENTATION

Use nozzles that produce flat or hollow cone spray patterns. Use non-drip type nozzles, such as diaphragm type nozzles, to avoid unwanted discharge of spray solution. The nozzles must be directed toward the rear of the aircraft, at an angle between 0 and 15° downward. Do not place nozzles on the outer 25% of the wings or rotors.

### ADJUVANTS AND DRIFT CONTROL ADDITIVES

Refer to tank mix partner's label for adjuvant recommendation. Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

### SPRAY DRIFT MANAGEMENT

The interaction of many equipment and weather related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all factors involved in minimizing drift potential.

#### *Importance of Droplet Size*

The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Use nozzle types and nozzle arrangements that will provide maximum coverage and minimize

the potential for off target movement of spray particles. Droplet size for both ground and air applications must be in the "medium" size category as defined in the August 1999 ASAE S572 publication entitled, "Spray Nozzle Classification by Drop Spectra". Refer to that publication for additional information. Regardless of droplet size, if applications are made improperly or under unfavorable environmental conditions off target movement will occur. (see Wind, Temperature and Humidity, and Temperature Inversion sections in this label).

#### *Controlling Droplet Size*

**Volume:** Use high flow rate nozzles that produce medium droplets to apply the highest practical spray volume.

**Pressure:** Use the lower spray pressures recommended for the nozzle and do not exceed the manufacturer's recommended pressure. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

**Number of nozzles:** Use the minimum number of nozzles that provide uniform coverage.

**Nozzle orientation:** Orienting nozzles so that the spray is released backwards parallel to the airstream will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

**Nozzle type:** Use a nozzle type that is designed for the intended application. Do not use air inducing or flood type nozzles.

**Boom length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Ground Boom Application Height:** Applications should not be made at a height greater than 4 feet above the top of the largest plants. Making applications at the lowest possible height reduces exposure of droplets to evaporation and wind.

#### *Swath Adjustment*

When applications are made with a cross wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

#### *Wind*

Variable wind speeds with changing directions may pose the largest potential for drift damage if crops other than rice are adjacent to the field to be sprayed. Drift potential is lowest between wind speeds of 2 to 8 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application must be avoided if wind speed is below 2 mph due to variable wind direction and high inversion potential. Note: local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

### *Temperature and Humidity*

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation, but they still should remain within the medium droplet size category. Droplet evaporation is most severe when conditions are both hot and dry.

### *Temperature Inversions*

Do not spray at times when spray particles may be entrained into a temperature inversion layer. If inversion conditions are suspected, consult with local weather services before making an application. Applications must not occur during temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

### *Sensitive Areas*

The pesticide must only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (i.e., when wind is blowing away from the sensitive areas).

### **SPRAYER CLEANUP**

Spray equipment, including mixing vessels and nurse tanks, must be cleaned each day following *Piper* Herbicide application. After *Piper* Herbicide is applied, the following steps must be used to clean the spray equipment:

- Completely drain the spray tank, rinse the sprayer thoroughly, including the inside and outside of the tank and all in-line screens.
- Fill the spray tank with clean water and flush all hoses, booms, screens and nozzles.
- Top off tank, add 1 gallon of 3% household ammonia (or equivalent) for every 100 gallons of water, circulate through sprayer for 5 minutes, and then flush all hoses, booms, screens and nozzles for a minimum of 15 minutes. If diaphragms are being used on the spray boom, loosen diaphragms before flushing the spray system, allowing cleaning solution to spray through the open diaphragm. If spray lines have any end caps, they must be loosened before flushing the system, allowing cleaning solution to spray through the loosened caps. To enhance removal of *Piper* Herbicide from the spray system,

add a tank cleaner such as "Valent Tank Cleaner," in place of ammonia and allow the cleaning solution to remain in the pressurized spray system (spray tank, hoses and boom) for 8 hours before flushing the system for a minimum of 15 minutes.

- Drain tank completely.
- Add enough clean water to the spray tank to allow all hoses, booms, screens and nozzles to be flushed for 2 minutes.
- Remove all nozzles and screens and rinse them in clean water.

Thoroughly clean the spray equipment, including all tanks, hoses, booms, screens and nozzles, before it is used to apply postemergence pesticides. Equipment with *Piper* Herbicide residue remaining in the system may result in crop injury to the subsequently treated crop.

### **ADDITIVES**

When an adjuvant is to be used with this product, Valent recommends the use of a Chemical Producers and Distributors Association certified adjuvant. Mix *Piper* Herbicide with a crop oil concentrate that contains at least 15% emulsifiers and 80% oil or a non-ionic surfactant containing at least 80% active ingredient when applying *Piper* Herbicide as part of a postemergence weed control program. Verify the mixing compatibility by a jar test before using.

A spray-grade nitrogen source (either ammonium sulfate at 2.0 to 2.5 lb/A or a 28 to 32% nitrogen solution at 1 to 2 qts/A) may be added to the spray mixture along with a crop oil concentrate or non-ionic surfactant to enhance weed control. The addition of a nitrogen source does not replace the need for crop oil concentrate or non-ionic surfactant.

### **JAR TEST TO DETERMINE COMPATIBILITY OF ADJUVANTS AND *PIPER* HERBICIDE**

When using *Piper* Herbicide and an adjuvant, a jar test should be performed before mixing commercial quantities of *Piper* Herbicide, when using *Piper* Herbicide for the first time, when using new adjuvants or when a new water source is being used.

1. Add 1 pt of the water to a quart jar. The water should be from the same source and temperature as which will be used in the spray tank mixing operation.
2. Add 1 g of *Piper* Herbicide to the quart jar for every 3 oz of *Piper* Herbicide per acre being applied (2 g if 6 oz/A is the desired *Piper* Herbicide rate), gently mix until product goes into suspension.
3. Add 60 ml (4 Tbsps or 2 fl oz) of the crop oil or methylated seed oil to the quart jar or 1 ml of non-ionic surfactant if it is being used in place of oil, gently mix.
4. If nitrogen is being used, add 16 ml (1 Tbsp or 0.5 oz) of the 28 to 32% nitrogen source to the quart jar. If ammonium sulfate is being used, add 19 g AMS to the quart jar in place of the 28 to 32% nitrogen.
5. Place cap on jar, invert 10 times, let stand for 15 minutes, evaluate.
6. An ideal tank mix combination will be uniform and

free of suspended particles. If any of the following conditions are observed the choice of adjuvant should be questioned:

a) Layer of oil or globules on the mixture's surface.

b) Flocculation: fine particles in suspension or as a layer on the bottom of the jar.

c) Clabbering: Thickening texture (coagulated) like gelatin.

**Table 1. Weeds Controlled or Suppressed by Residual Activity of Piper Herbicide**

<b>Common Name</b>	<b>Scientific Name</b>	<b>C = Control S = Suppression</b>
<b>BROADLEAF WEED SPECIES</b>		
Bristly Starbur	<i>Acanthospermum hispidum</i>	S
Carpetweed	<i>Mollugo verticillata</i>	C
Chickweeds		
Common	<i>Stellaria media</i>	C
Mouseear	<i>Cerastium vulgatum</i>	C
Coffee Senna	<i>Cassia occidentalis</i>	C
Common Ragweed	<i>Ambrosia artemisiifolia</i>	C
Copperleaf, Hophornbeam	<i>Acalypha ostryifolia</i>	S
Dandelion	<i>Taraxacum officinale</i>	C
Eclipta	<i>Eclipta prostrate</i>	C
Eveningprimrose, Cutleaf	<i>Oenothera laciniata</i>	C
Florida Beggarweed	<i>Desmodium tortuosum</i>	C
Florida Pusley	<i>Richardia scabra</i>	C
Golden Crownbeard	<i>Verbesina encelioides</i>	C
Hairy Indigo	<i>Indigofera hirsuta</i>	C
Hemp Sesbania	<i>Sesbania exaltata</i>	C
Henbit	<i>Lamium amplexicaule</i>	C
Jimsonweed	<i>Datura stramonium</i>	C
Kochia	<i>Kochia scoparia</i>	C
Lambsquarters, Common	<i>Chenopodium album</i>	C
Little Mallow	<i>Malva parviflora</i>	C
Marestail/Horseweed	<i>Conyza canadensis</i>	C
Morningglories		
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriscula</i>	C
Ivyleaf	<i>Ipomoea hederacea</i>	C
Red/Scarlet	<i>Ipomoea coccinea</i>	C
Tall	<i>Ipomoea purpurea</i>	C
Mustard, Wild	<i>Brassica kaber</i>	C
Nightshades		
Black	<i>Solanum nigrum</i>	C
Eastern Black	<i>Solanum ptycanthum</i>	C
Hairy	<i>Solanum sarrachoides</i>	C
Palmer Amaranth	<i>Amaranthus palmeri</i>	C
Pigweeds		
Redroot	<i>Amaranthus retroflexus</i>	C
Smooth	<i>Amaranthus hybridus</i>	C
Spiny Amaranth	<i>Amaranthus spinosus</i>	C
Tumble	<i>Amaranthus albus</i>	C
Prickly Sida (Teaweed)	<i>Sida spinosa</i>	C
Puncturevine	<i>Tribulus terrestris</i>	C
Purslane, Common	<i>Portulaca oleracea</i>	C
Radish, Wild	<i>Raphanus raphanistrum</i>	C

(continued)

**Table 1. Weeds Controlled or Suppressed by Residual Activity of Piper Herbicide (continued)**

<b>Common Name</b>	<b>Scientific Name</b>	<b>C = Control S = Suppression</b>
<b>BROADLEAF WEED SPECIES (continued)</b>		
Ragweed, Giant	<i>Ambrosia trifida</i>	S
Redmaids	<i>Calandrinia ciliata</i> var. <i>menziessii</i>	C
Russian Thistle	<i>Salsola iberica</i>	C
Shepherd's-purse	<i>Capsella bursa-pastoris</i>	C
Smallflower Morningglory	<i>Jacquemontia tamnifolia</i>	C
Smartweeds		
Ladysthumb	<i>Polygonum persicaria</i>	S
Pennsylvania	<i>Polygonum pennsylvanicum</i>	S
Spotted Spurge	<i>Euphorbia maculate</i>	C
Spurred Anoda	<i>Anoda cristata</i>	C
Tropic Croton	<i>Croton glandulosus</i>	C
Velvetleaf	<i>Abutilon theophrasti</i>	C
Venice Mallow	<i>Hibiscus trionum</i>	C
Waterhemp		
Common	<i>Amaranthus rudis</i>	C
Tall	<i>Amaranthus tuberculatus</i>	C
Wild Buckwheat	<i>Polygonum convolvulus</i>	S
Wild Poinsettia	<i>Euphorbia heterophylla</i>	C
Wormwood, Biennial	<i>Artemisia biennis</i>	S
<b>GRASS WEED SPECIES</b>		
Barnyardgrass	<i>Echinochloa crus-galli</i>	C
Bluegrass, Annual	<i>Poa annua</i>	C
Cheat	<i>Bromus secalinus</i>	C
Crabgrass		
Large	<i>Digitaria sanguinalis</i>	C
Smooth	<i>Digitaria ischaemum</i>	C
Cupgrass, Southwestern	<i>Eriochloa gracilis</i>	C
Downy Brome	<i>Bromus tectorum</i>	C
Foxtails		
Giant	<i>Setaria faberi</i>	C
Green	<i>Setaria viridis</i>	C
Yellow	<i>Setaria glauca</i>	C
Goosegrass	<i>Eleusine indica</i>	C
Johnsongrass (seedling)	<i>Sorghum halepense</i>	C
Lovegrass, California	<i>Eragrostis diffusa</i>	C
Panicums		
Fall	<i>Panicum dichotomiflorum</i>	C
Texas	<i>Panicum texanum</i>	C
Red Rice	<i>Oryza sativa</i>	C
Ryegrass		
Italian	<i>Lolium multiflorum</i>	C
Rigid	<i>Lolium rigidum</i>	C
Signalgrass, Broadleaf	<i>Brachiaria platyphylla</i>	C



## DIRECTIONS FOR USE TO MAINTAIN BARE GROUND ON NON-CROP AREAS

*Piper* Herbicide, when used as directed, can be used for non-selective vegetation control to maintain bare ground non-crop areas that must be kept weed-free. Apply *Piper* Herbicide only to:

- Bare ground under guardrails, pipelines, railroad beds, railroad yards and surrounding areas
- Bare ground in parking and storage areas, plant sites, substations, pumping stations, and tank farms
- Bare ground areas of airports, brickyards, industrial plant sites, lumber yards and military installations, and storage areas
- Bare ground around farm buildings and along ungrazed fencerows, wind breaks, and shelter belts
- Road surfaces, improved roadside areas and gravel shoulders

*Piper* Herbicide offers residual and postemergence control of susceptible broadleaf and grass weeds as well as an additional mode of action to assist in the control of ALS (acetolactate synthase) resistant weeds listed in Table 1, Weeds Controlled or Suppressed by Residual Activity of *Piper* Herbicide. *Piper* Herbicide can be tank mixed with the herbicides listed in Table 2 for increased residual or postemergence control. The length of residual control is dependent on the rate applied as well as on rainfall and temperature conditions. Length of residual control will decrease as temperature and precipitation increase.

### PREEMERGENCE APPLICATION

Apply 10 oz of *Piper* Herbicide per broadcast acre as a preemergence application on all soil types (up to 5% organic matter). Make the preemergence (to weed emergence) applications of *Piper* Herbicide to a weed-free soil surface. Preemergence applications of *Piper* Herbicide must be completed prior to weed emergence. Moisture is necessary to activate *Piper* Herbicide on soil for residual weed control. Dry weather following application of *Piper* Herbicide may reduce effectiveness. However, when adequate moisture is received after dry conditions, *Piper* Herbicide will control susceptible germinating weeds.

### POSTEMERGENCE APPLICATION

Apply 10 oz of *Piper* Herbicide per broadcast acre plus an adjuvant (0.25% v/v non-ionic surfactant or 1 qt/A crop oil concentrate). The addition of an adjuvant enhances *Piper* Herbicide activity on emerged weeds. Thorough spray coverage is necessary to maximize the postemergence activity of *Piper* Herbicide. Emerged weeds are controlled postemergence with *Piper* Herbicide, however, translocation of *Piper* Herbicide within a weed is limited, and control is affected by spray coverage and by the addition of an adjuvant. The most effective postemergence weed control with *Piper* Herbicide occurs when applied in combination with a surfactant to weeds less than 2 inches in height. Use a tank mix partner in combination with *Piper* Herbicide for the postemergence control of weeds larger than 2 inches. Recommend-

ed tank mix partners are listed in Table 2, Suggested Tank Mix Combinations For Non-Selective Vegetation Control.

**IMPORTANT:** Completely read and follow the label of any potential tank mix partner with *Piper* Herbicide. When using tank mixtures, use conditions must be in accordance with the most restrictive of the label limitations and precautions on either herbicide label.

**Table 2. Suggested Tank Mix Combinations For Non-Selective Vegetation Control**

2,4-D	hexazinone	picloram
bromacil	imazapic	pramitol
chlorsulfuron	imazapyr	prodiamine
dicamba	metsulfuron methyl	simazine
diuron	norflurazon	sulfometuron methyl
chlorpyralid	oryzalin	tebuthiuron
glyphosate	pendimethalin	triclopyr
sulfentrazone	aminopyralid	topramazole

## STORAGE AND DISPOSAL

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

### PESTICIDE STORAGE

Keep pesticide in original container.

Store in a cool, dry, secure place.

Do not put formulation or dilute spray solution into food or drink containers.

Do not contaminate food or foodstuffs.

Do not store or transport near feed or food.

Not for use or storage in or around the home.

For help with any spill, leak, fire or exposure involving this material, call day or night (800) 892-0099.

### PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### CONTAINER HANDLING

Nonrefillable container. Do not reuse or refill the container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. 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. Then offer for recycling if available 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.

*Piper* is a trademark and *Products That Work, From People Who Care* is a registered trademark of Valent U.S.A. Corporation

Manufactured for:

**Valent U.S.A. Corporation**

P.O. Box 8025

Walnut Creek CA 94596-8025

Made in U.S.A.

Form 1891-A

EPA Reg. No. 59639-193

EPA Est. 11773-IA-01<sup>(W)</sup>, 67545-AZ-01<sup>(E)</sup>, 39578-TX-01<sup>(Y)</sup>

Superscript is first letter of lot number.

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Always check with your state to verify state registration status or call 800-89-VALENT (898-2536).



For state registration and/or supplemental labels, please call or visit us online.

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