

# **STUMP AND CUT STEM TREATMENTS - TREE INJECTION**

## General Information

### GENERAL INFORMATION

Use Sites: Arsenal is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution to grass pasture and rangeland and noncropland areas such as railroad, utility, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, non-irrigation ditchbanks, including grazed or hayed areas within these sites.

Arsenal is recommended for the establishment and maintenance of wildlife openings. Arsenal may also be used for the release of unimproved bermudagrass (see specific directions) and for use under certain paved surfaces (see specific directions).

Application Methods: Arsenal will control most annual and perennial grasses and broadleaf weeds in addition to many brush and vine species and Arsenal will provide residual control of labeled weeds which germinate in the treated areas. This product may be applied either preemergence or postemergence to the weeds; however, postemergence application is the method of choice in most situations, particularly for perennial species. For maximum activity, weeds should be growing vigorously at the time of postemergence application and the spray solution should include a surfactant (See Adjuvant Section for specific recommendations). These solutions may be applied selectively by using low-volume techniques or may be applied broadcast by using ground equipment or aerial equipment. In addition, Arsenal may also be used for stump and cut stem treatments (see specific directions).

Herbicidal Activity: Arsenal is readily absorbed through leaves, stems, and roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into, and kills, underground storage organs which prevents regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until two weeks after application.

Complete kill of plants may not occur for several weeks. Applications of Arsenal herbicide are rainfast one hour after treatment.

## PRECAUTIONS FOR AVOIDING INJURY

### TO NON-TARGET PLANTS

Untreated trees can occasionally be affected by root uptake of Arsenal through movement into the top soil.

Injury or loss of desirable trees or other plants may result if Arsenal is applied on or near desirable trees or other plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots.

Aerial Application Methods and Equipment: Use 2 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

Ground Application (Broadcast): Use 5 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

## BRUSH CONTROL

### AERIAL APPLICATIONS:

All precautions should be taken to minimize or eliminate spray drift. Fixed wing aircraft and helicopters can be used to apply Arsenal, however, DO NOT make

applications by fixed wing aircraft unless appropriate buffer zones can be maintained to prevent spray drift out of the target area or, when treating open tracts of land, spray drift as a result of fixed wing aircraft application can be tolerated. Aerial equipment designed to minimize spray drift, such as a helicopter equipped with a Microfoil boom, Thru-Valve boom or raindrop nozzles, must be used and calibrated.

Except when applying with a Microfoil boom, a drift control agent may be added at the recommended label rate. To avoid drift, applications should not be made during inversion conditions, when winds are gusty, or any other conditions which allow drift. Side trimming is not recommended with Arsenal unless death of treated tree can be tolerated.

Uniformly apply the recommended amount of Arsenal in 5 to 30 gallons of water per acre; include in the spray solution a nonionic surfactant or methylated seed oil or manufacturer's label rate of a silicone-based surfactant (See the Adjuvant section of the label for specific recommendations).

A foam reducing agent may be added at the recommended label rate, if needed.

**IMPORTANT:** Thoroughly clean application equipment, including landing gear, immediately after use of this product. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part. The maintenance of an organic coating (paint) may prevent corrosion.

#### GROUND APPLICATIONS:

**IMPORTANT:** To minimize spray drift, select proper nozzles to avoid spraying a fine mist, use pressures less than 50 psi, and do not spray under gusty or windy conditions.

Add a foam reducing agent, if needed, and a spray pattern indicator, if desired, at the recommended label rates. Clean application equipment after using this product by thoroughly flushing with water.

When making applications to rights-of-way corridors where desirable tree roots may extend, use 1 to 3 pints of Arsenal herbicide per acre in combination with recommended tank mixes. It is not recommended to use rates higher than 3 pints

per acre in these situations as injury or death of desirable trees may occur when their roots extend into treated zones.

#### Side Trimming:

DO NOT side trim with Arsenal unless severe injury or death of the treated tree can be tolerated. Arsenal is readily translocated and can result in death of the entire tree.

#### Low Volume:

Use equipment calibrated to deliver 5 to 20 gallons of spray solution per acre. To prepare the spray solution, thoroughly mix in water 0.5 to 5% Arsenal plus surfactant (See the Adjuvant section of the label for specific recommendations). A foam reducing agent may be applied at the recommended label rate, if needed. For control of difficult brush species (see Weeds Controlled section for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes but do not apply more than 6 pints of Arsenal per acre. Excessive wetting of foliage is not recommended. See the Mixing Guide below for some suggested volumes of Arsenal and water.

Refer in the label for tank mix information.

#### Limitations, Restrictions, and Exceptions

#### STUMP AND CUT STEM TREATMENTS

Arsenal may be used to control undesirable woody vegetation on noncropland by applying the Arsenal solution to the cambium area of freshly-cut stump surfaces or to fresh cuts on the stem of the target woody vegetation. Applications can be made at any time of the year except during periods of heavy sap flow in the spring. Do not overapply solution causing run-off or puddling.

Mixing: Arsenal may be mixed as either a concentrated or dilute solution for stump and cut stem treatments. The dilute solution may be used for applications to the surface of the stump or to cuts on the stem of the target woody vegetation. Concentrated solutions may be used for applications to cuts on the stem. Use of the concentrated solution permits application to fewer cuts on the stem, especially for large diameter trees. Follow the application instructions to determine proper application techniques for each type of solution.

To prepare a dilute solution, mix 8 to 12 fluid ounces of Arsenal with one gallon of water. If temperatures are such that freezing of the spray mixture may occur, antifreeze (ethylene glycol) may be used according to manufacturer's label to prevent freezing. The use of a surfactant or penetrating agent may improve uptake through partially callused cambiums. To prepare a concentrated solution, mix 2 quarts of Arsenal with no more than 1 quart of water.

#### APPLICATION WITH DILUTE SOLUTIONS

For tree injection treatments: Using standard injection equipment, apply 1 milliliter of solution at each injection site around the tree with no more than one inch intervals between cut edges. Insure that the injector completely penetrates the bark at each injection site.

#### APPLICATION WITH CONCENTRATED SOLUTIONS

For tree injection treatments: Using standard injection equipment, apply 1 milliliter of solution at each injection site. Make at least one injection cut for every 3 inches of Diameter at Breast Height (DBH) on the target tree. For example, a 3 inch DBH tree will receive 1 injection cut and a 6 inch DBH tree will receive 2 injection cuts. On trees requiring more than one injection site place the injection cuts at approximately equal intervals around the tree.

Method

[Injection](#)

Restricted Entry Interval

48 hours

Timings

[Preemergence \(Weed\)](#)

## Postemergence (Weed)