



STATE OF MAINE  
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY  
BOARD OF PESTICIDES CONTROL  
28 STATE HOUSE STATION  
AUGUSTA, MAINE 04333

JANET T. MILLS  
GOVERNOR

AMANDA E. BEAL  
COMMISSIONER

**BOARD OF PESTICIDES CONTROL**

**December 1, 2023**

**9:00 AM Board Meeting**

**MINUTES**

Present: Adams, Bohlen, Carlton, Ianni, Jemison, Lajoie, Neavyn

1. Introductions of Board and Staff

- Boyd, Bryer, Couture, Pietroski, Peacock
- Assistant Attorney General, Carey Gustanski

2. Minutes of the October 13, 2023 Board Meeting

Presentation By: John Pietroski, Acting Director  
Action Needed: Amend and/or approve

- **Jemison/Lajoie: Moved and seconded to approve minutes as amended**
- **In Favor: Unanimous**

3. Funding Request for DACF IPM Program

The Integrated Pest Management Program is requesting funds to assist with ongoing efforts for the advancement of IPM in Maine. The Maine IPM Program works closely with the BPC to educate and promote IPM across the entire State of Maine, including giving talks annually for applicator credits across several categories, updating the GotPests website with new factsheets and research, and referring to the BPC website in all presentations and educational materials. While the IPM Program is supported, in part, by grant funding this funding is insufficient to support all outreach opportunities. The Board originally heard this request at their September 1, 2023 meeting and decided to table it until the budget could be reviewed. The IPM Program is requesting a grant of \$38,911 to support outreach and education in calendar year 2024.

Presentation By: Hillary Peterson, Ph.D., IPM Specialist  
Action Needed: Discussion and decision to amend/approve/disapprove funding

MEGAN PATTERSON, DIRECTOR  
90 BLOSSOM LANE, DEERING BUILDING



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- Peterson provided the Board with a memo detailing expenses needed for the IPM program. She explained that the monies listed for the Rodent Academy would be reimbursed by the fee for attendance to the academy. Peterson stated that the total ask that would not be reimbursed was \$27,801. There was an increase in the funding request for the mosquito monitoring program because more hours were needed for the mosquito monitoring intern.
- Adams stated that registrations were back up and projected numbers were reasonable. He asked if this line item had been added to the projected budget.
- Pietroski responded that the request was added under expenditures.
  - **Carlton/Jemison: Moved and seconded to approve funding request for DACF IPM Program**
  - **In Favor: Unanimous**

4. Workshop Session to Review the Rulemaking Record on the Proposed Amendments to Chapter 41

*(Note: No additional public comments may be accepted at this time.)*

On August 9, 2023 a Notice of Agency Rulemaking Proposal was published in Maine’s daily newspapers, opening the comment period on the proposed amendments to Chapter 20, 31, 32, 41. A public hearing was held on September 1, 2023 by a hybrid meeting in Deering Building 101 at 90 Blossom Lane, Augusta and on the Microsoft Teams platform. The written comment period closed at 5:00 PM on September 11, 2023. Nine people spoke at the public hearing and six written comments were received by the close of the comment period. The Board moved forward and voted to adopt Chapters 20, 31, and 32. The Board changed language in Chapter 41 related to acreage requirements for dealers and re-posted the proposed rulemaking to allow for public comment until November 24, 2023 at 11:59 PM. The Board will now review the rulemaking comments for Chapter 41 and determine how it wishes to proceed with the rulemaking proposals.

Presentation By: Karla Boyd, Policy & Regulations Specialist  
 Action Needed: Discussion and determination on how the Board wishes to proceed with the rulemaking proposals

- At the previous meeting the Board had voted to go back out for comment regarding the acreage size limit for *Bt* corn seed detailed in Chapter 41.
  - **Lajoie/Carlton: Moved and seconded to accept as written**
  - **In Favor: Unanimous**

5. Update on Implementation of LD 1770: Resolve, Directing the Board of Pesticides Control to Transition to Electronic Submission of Pesticides Sales and Use Data

At the September 1, 2023 Board meeting, staff brought forward a memo regarding the implementation of LD 1770. Bohlen agreed to join staff for a meeting with developers and licensed applicators/dealers that use Maine Pesticide Enforcement, Registration, and Licensing Software (MEPERLS) to discuss changes that would be needed to simplify the data entry process for annual reports. Staff will provide an update from these meetings. In addition, the Board discussed potential rulemaking to require electronic submissions of records. Staff will give a brief

update on the discussions at the sales and use meetings. These discussions will be included in the report on the implementation of LD 1770 is due to the legislature by March 1, 2024.

Presentation By: John Pietroski, Acting Director  
Action Needed: Discussion

- Pietroski stated that this change was prompted by LD 1770 and Boyd would be preparing the legislative report that is due March 1, 2024. He outlined the details and persons who attended the last two meetings discussing use and sales changes. Pietroski stated there would be another upcoming meeting.
- Bohlen explained some of the types of errors that crop up in the data on a regular basis. He stated there needed to be clarity on the purpose of these data and the critical questions to be answered by it. Bohlen added that consideration must be taken regarding how to present the findings in a fair, honest and informative manner. He posed the suggestion of possibly reporting on the twenty most common actives used in the state. Bohlen added that it would be a fair amount of work to do to pull this together and there would be a lot of back and forth with the regulated community to get the the most accurate data possible.
- Bryer asked what the questions were that BPC staff should focus on trying to answer.
- Bohlen stated that that answer was fairly broad but staff should focus on how people are using pesticides, if there were trends in pesticide use and which pesticides were being used most often.
- There was discussion about the duplication of reporting if both applicator reports and dealer reports were counted. Bohlen stated that the two reports could not be added together.
- Patterson noted that the ACF committee was open to the fact that collecting these data electronically would be challenging.
- There was further discussion of the limitations of these data and the regulated community who are unable to comply with electronic reporting.
- Lajoie noted that much pesticide use was seasonal and some pesticides did not get used some years depending on weather patterns.
- Patterson explained those that could not submit an annual report would not be able to renew their license.
- Bohlen noted he would like the discussion about difficulties in entering electronically to be addressed in the rulemaking process. Other Board members agreed.
- Jemison stated it may be beneficial for the ACF Committee to hear this discussion.
- Adams stated that the Board needed to know the percentage of applicators that could submit electronically. He suggested staff reach out to those doing the reporting to find out what would be a hardship.

## 6. Draft Adjuvant Policy

At the February 24, 2023 Board meeting, the Board voted on developing a policy that excluded colorants as adjuvants following the implementation of PL 2022 c. 673 (130<sup>st</sup> Legislature LD 2019), which includes spray adjuvants in the definition of pesticides. At the July 21, 2023 Board meeting, the Board voted to implement a policy related to the distribution of adjuvants that were not previously registered in Maine. Additionally, there is a need to develop a policy regarding recordkeeping requirements for spray adjuvants. Staff have combined these concepts into one policy for consideration.

Presentation By: Karla Boyd, Policy & Regulations Specialist  
John Pietroski, Acting Director  
Action Needed: Discuss; approve/disapprove adoption by interim policy

- Staff brought forward a draft policy regarding reporting adjuvants and what products would be considered adjuvants.
- Adams noted that policy was non-enforceable, so it would need to be added into rule.
- Patterson stated that it may be clearer to state what regulations do not pertain to adjuvants.
- Adams stated he did not see the urgency in adopting this policy today and would like some time to review adjuvant labels.
- The Board discussed the details of what needed to be reported and how label violations of adjuvants would be handled.
- Adams asked staff to come back at the next Board meeting with either rulemaking and/or a policy regarding what would not be required for adjuvants.
- Bohlen had questions about which pieces needed to go through rulemaking and which could be done via policy.
  - **Carlton/Jemison: Moved and seconded to table until next meeting**
  - **In Favor: Unanimous**

7. Pesticide Regulatory Changes Announced by EPA regarding Bulletins Live! Two and the Endocrine Disruptor Screening Program

Board staff received a request to bring forth a discussion of several recently released “EPA Update” press releases. Bulletins Live Two is a web map service run by EPA that instructs pesticide applicators about geographic areas where applications must be modified or avoided. Applicators in Maine have not needed to make changes to applications based on Bulletins Live! Two until very recently. Additional focus on Bulletins Live! Two comes from its proposed role in implementing the changes to pesticide registration that have been recently proposed due to changes brought on by the Endangered Species Program. EPA has also announced a revitalization of the Endocrine Disruptor Screening Program (EDSP). The EDSP covers all chemicals under EPA’s authority; changes in this program are likely to affect pesticide registration review and re-review.

Presentation By: Pamela Bryer, PhD, Pesticides Toxicologist  
Karla Boyd, Policy & Regulations Specialist  
Action Needed: Discussion

- Boyd explained the documents provided to the Board regarding Bulletins Live! Two and the Pesticide Use Limitation Area, PULA, designated by EPA in part of Aroostook County. There will likely be more PULA’s in Maine in the future. She explained that EPA was evaluating pesticides in large groups rather than by specific active ingredients. The first group resulted in the Herbicide Strategy presented to the Board at the last meeting. The next groups were slated to be the insecticide and the fungicide strategies. Boyd stated there was an example label of one of the products in the Board packet that would be subject to the PULA and applicator’s would need to navigate to the Bulletin’s Live! Two website for further application direction.
- AV equipment in the meeting room was not functioning so Bryer was unable to present the prepared presentation to the Board regarding the Endocrine Disruptor Screening Program (EDSP). The Board agreed this would be better to present at a later date.

8. Update on Agricultural Container Recycling in Maine by Mark Hudson

At the September 1, 2023 Board meeting members expressed interest in receiving an update regarding the current landscape of agricultural container recycling in Maine. In response, staff spoke with Mark Hudson, Executive Director, of the Ag Container Recycling Council (ACRC). Hudson offered to give an update on agricultural container recycling.

Presentation By: Mark Hudson, Executive Director, Ag Container Recycling Council  
Action Needed: Discussion

- Hudson explained the history of the Ag Container Recycling Council, ACRC, and presented a PowerPoint presentation to the Board. He explained that the program was not only for pesticide containers but for all agricultural containers, including fertilizers, adjuvants and more. After containers were properly rinsed, the goal of the ACRC was to store, collect, inspect, grind, and recycle the plastics into various end uses. The ACRC has collected over 240 million pounds since its inception.
- Hudson explained the current ACRC situation in Maine and explained the importance of proper container rinsing. He said dirty containers were the number one threat to the program. Hudson stated that ACRC collected approximately 10,000 containers in Maine in 2023 and had the low rejection rate of less than 1.6%, which was promising. He stated that ACRC was actively looking for additional collection sites in Maine. The current sites were at Nutrien, Helena, and Carovail.

9. Consideration of Consent Agreement with Green Shield Pest Solutions Saco, Maine

On June 3, 1998, the Board amended its Enforcement Protocol to authorize staff to work with the Attorney General and negotiate consent agreements in advance on matters not involving substantial threats to the environment or public health. This procedure was designed for cases where there is no dispute of material facts or law, and the violator admits to the violation and acknowledges a willingness to pay a fine to resolve the matter. This case involved an unauthorized application, use of a pesticide inconsistent with the label and use of a pesticide in a negligent manner.

Presentation By: Alex Peacock, Manager of Compliance  
Action Needed: Review and/or Approve

- Peacock stated that the company failed twice to notify the same person on the notification registry this year.
  - **Carlton/Jemison: Moved and seconded to approve the consent agreement**
  - **In Favor: Unanimous**

10. Other Old and New Business

- a. EPA request for comment on WHITE PAPER: Benefits of the Adoption of Structured Content and Digital Pesticide Labels

- b. EPA Update: EPA Issues Advanced Notice of Proposed Rulemaking for Public Comment to Seek Additional Information on Use of Pesticide Treated Seed and Paint
- c. EPA Update: EPA Releases Draft Biological Evaluations of Dinotefuran and Acetamiprid Effects on Endangered Species
- d. EPA Update: EPA Publishes New Webpage to Answer Frequently Asked Questions on the EPA/FDA Whitepaper on Modernizing Oversight of Products for Animals Regulated as Pesticides or New Animal Drugs
- e. EPA Update: The Coordinated Framework for the Regulation of Biotechnology
- f. EPA Update: EPA Proposes Updates to Strengthen the Safer Choice Standard
- g. EPA Update: EPA Approves Strengthened Pesticide Safety Plans for Certifying Applicators
- h. Article: Federal appeals court sides with agriculture on chlorpyrifos

9. Schedule of Future Meetings

January 10, 2024, February 23, 2024 and April 5, 2024 are the next scheduled Board meeting dates. The Board will decide whether to change and/or add dates.

Staff reserved Augusta Civic Center Kennebec/Penobscot Room for January 10, 2024; Marquardt Room 118 for February 23, 2024; and Deering Room 101 for April 5, 2024.

Deering Building Room 101 has been reserved for the following tentative dates: May 17, June 28, and August 16, 2024

Adjustments and/or Additional Dates?

11. Adjourn

- **Carlton/Jemison: Moved and seconded to adjourn at 11:50 AM**
- **In Favor: Unanimous**



JANET T. MILLS  
GOVERNOR

AMANDA E. BEAL  
COMMISSIONER

## MAINE BOARD OF PESTICIDES CONTROL POLICY REGARDING THE TREATMENT OF ADJUVANTS AS PESTICIDES

### BACKGROUND

LD 2019 “An Act To Require the Registration of Adjuvants in the State and To Regulate the Distribution of Pesticides with Perfluoroalkyl and Polyfluoroalkyl Substances” (PL 2022 c.673) was approved by the 130th Maine Legislature in 2022. Under this law, adjuvants were added to the definition of pesticides and must now be registered within the State of Maine. The Board has discussed several policies related to spray adjuvants, which have been consolidated below. The purpose of this policy is to clarify the Board’s decisions regarding the treatment of “spray adjuvants” in the state of Maine.

Inclusion of Colorants: At the February 24, 2023 Board meeting, the Board discussed a staff memo regarding colorants and if they are considered pesticides under the new state definition. An informal vote was taken, and the majority of Board members stated that colorants did not fit into the definition of adjuvants given that they do not increase the efficacy of the applied product. The Board also agreed that water was not considered a spray adjuvant when added to pesticides.

### POLICY

#### Colorants and Water

The following are not considered spray adjuvants in Maine:

- Adjuvants that are labeled as colorants for pesticides
- Water added to pesticides

MEGAN PATTERSON, DIRECTOR  
90 BLOSSOM LANE  
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STATE OF MAINE  
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 28 STATE HOUSE STATION  
 AUGUSTA, MAINE 04333

JANET T. MILLS  
 GOVERNOR

AMANDA E. BEAL  
 COMMISSIONER

To: Board of Pesticides Control Members  
 From: BPC Staff

RE: Five year extension request for SLN ME-040001 [FIFRA, Section 24(c)], Arsenal Herbicide Applicators Concentrate, EPA Reg. No. 241-299, for Jack pine, red spruce and white spruce release

Date: December 28, 2023

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Ronald Lemin, Jr., Vegetation Management Sales Consultant, Nutrien Solutions, is requesting an extension of SLN (Special Local Needs) registration for Arsenal Herbicide Applicators Concentrate, ME-040001. Active ingredient is imazapyr. No changes have been made in the SLN label.

The market label specifies a maximum surfactant concentration of 0.25% (v/v) for conifer release. The SLN permits use of Arsenal at less than the labeled rate when tank mixed with glyphosate at rates greater 0.25% v/v. This reduces the rate of Arsenal and maximizes the effectiveness of glyphosate while reducing spruce injury and the need for repeat applications. The SLN has been active since 2004 and expired Dec. 31, 2023.

BASF continues its efforts to incorporate the use into the EPA label. Because EPA is experiencing delays in label amendment reviews, BASF requests an extension of five years to bridge the gap until the use is added to the label and BASF begins production and distribution of the revised label. Should this occur sooner than five years, the SLN becomes void.

The section 3 product label is registered for multiple sites, including use as an aquatic herbicide. Pam Byer, Ph.D., BPC toxicologist has previously indicated the rate under this SLN should not cause any undue harm to humans or the environment.

Please review the attached documents and let me know if you have any questions.

- Letters of request (2023 and 2004) from Ronald Lemin, Jr.
- Letter of support from Effie Toren, Registration Specialist, BASF
- Arsenal SLN label with five-year extension
- Arsenal EPA label
- Arsenal Section 3 label
- Arsenal SDS







*Ronald C. Lemin, Jr.*  
*Vegetation Management Sales Consultant*  
*291 Lincoln Street*  
*Bangor, Maine 04401*  
*207-944-6160 (m)*  
*Ronald.lemine@nutrien.com*

December 27, 2023

Mary E. Tomlinson  
Pesticide Registrar- Water Quality Specialist  
Maine Board of Pesticides Control  
28 SHS  
Augusta, Maine 04333

Dear Mary and the Board of Pesticides Control,

I am writing this letter to request a continuation of the Special Local Needs label (EPA SLN NO. ME-04001) for Arsenal Applicators Concentrate, EPA Registration Number 241-299. This letter reiterates my 2021 request to extend the registration, and my initial request to establish the SLN back in 2004. I attached my original letter to the Maine Board of Pesticides Control from 2004.

Forest industry in Maine has been using this SLN annually in the release of spruce for the last 20 years and continues to need this SLN label until the EPA and BASF incorporates the wording into the existing Arsenal Applicators Concentrate label. I cannot explain why the wording hasn't been incorporated in the last 20 years, but it should be done at the next re-registration of EPA 241-299.

The current Arsenal Applicators Concentrate label requires 6-12 ounces of Arsenal A.C. per acre for spruce release, however in Maine we are only able to use 1-1.5 ounces of Arsenal Applicators Concentrate when tank mixed with 1.5-2.25 quarts of unloaded forestry labelled glyphosate. Anything greater than 1.5 ounces of Arsenal Applicators Concentrate on planted spruce results in significant top kill. From an IPM standpoint alone, it would be prudent to apply only what is needed rather than too much pesticide to complete the task. The label specifies a surfactant rate of 0.25% v/v when adding Arsenal Applicators Concentrate for forestry release. In Maine we require a surfactant load higher than 0.25% for the imazapyr and glyphosate prescription to control the woody vegetation. Rates at 0.25% or lower would result in respray on the same sites in subsequent years.

These rates specified on the SLN NO. ME-04001 have been in use for well over 20 years and based on experimenting with these products and surfactants in the mid to late 1990's. I would again like to reiterate my request for a continuation of the SLN for another 5 years, or until the federal label incorporates the existing wording for Maine forestry release.

Thank you for your time and consideration. If you have any further questions, please feel free to contact me at the address below.

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald C. Lemin, Jr.", written in a cursive style.

Ronald C. Lemin, Jr.  
Vegetation Management Consultant, Nutrien Solutions  
Licensed Professional Forester, ME, NH  
SAF Certified Forester  
Maine Licensed Applicator



May 24, 2004

Maine Board of Pesticide Control  
Attn: Bob Batteese  
28 State House Station  
Augusta, ME 04333-0028

Dear Mr. Batteese:

I am writing to express support for the request for a special local need (24(c)) label for Arsenal Applicators Concentrate to allow for the use of increased nonionic surfactant concentration in Maine for forestry conifer release when used in tank mix concentrations with Accord Concentrate and Oust. Currently the Arsenal label allows for a maximum nonionic surfactant concentration of  $\frac{1}{4}$  of one percent. When releasing conifers at 8 to 10 gallons per acre, this represents only 2.6 to 3.2 ounces of surfactant per acre. The Arsenal label requires 6-12 ounces of Arsenal per acre for spruce release, however in Maine we are using only 1-2.5 ounces tank mixed with 1.5-2.25 quarts of Accord Concentrate. Consequently, the bulk of the active ingredient (glyphosate) will not perform adequately at this low surfactant level.

At the current labeled rate of surfactant, and using the tank mixes of 1.5 -2.25 quarts of Accord Concentrate and 1-2.5 ounces of Arsenal A.C., the result would be significant poor performance and re-spray claims from forest industry. In a time of increased emphasis on IPM, and as a member of the governor's Integrated Pest Management Council, I feel that the need to increase the surfactant level on the Arsenal label is essential for the forestry industry. The alternative result could be unnecessary re-sprays and therefore, increased chemical usage per treatment area.

Thank you for your time and consideration. If you have any further questions, please feel free to contact me at the address below.

Sincerely,

Ronald C. Lemin, Jr.  
UAP Timberland, Market Manager  
Licensed Professional Forester, ME, NH  
SAF Certified Forester  
Maine Licensed Applicator



We create chemistry

Agricultural Solutions

December 15, 2023

Mary Tomlinson  
Board of Pesticide Control  
Maine Department of Agriculture  
28 State House Station  
Augusta, ME 04333-0028

**Re: Arsenal® Applicators Concentrate Herbicide, EPA Reg. No. 241-299  
Section 24(c) Registration**

Dear Ms. Tomlinson,

Enclosed is revised Section 24(c) labeling (coded NVA 2023-04-104-0181) extending the expiration date for labeling allowing the use of an increased concentration of nonionic surfactant when **Arsenal Applicators Concentrate** is used in tank mix concentrations with glyphosate for the purpose forestry conifer release.

There is a previous 24(c) label granted (SLN No. ME-040001) which is set to expire on December 31, 2023. BASF plans to submit amended Section 3 labeling to the US EPA, but it will take years to achieve EPA acceptance and to incorporate those changes into production on product containers. This 24(c) request is to maintain the ability of the increased concentration of nonionic surfactant use with glyphosate tank mixes while BASF incorporates the use into Section 3 labeling.

Thank you very much. Please contact me at 919-724-1350 or [effie.toren@basf.com](mailto:effie.toren@basf.com) if you require anything else.

Sincerely,  
**BASF Corporation**

Effie Toren  
State Registration Manager

Encl.

**BASF Corporation**  
26 Davis Drive, PO Box 13528  
Research Triangle Park  
NC 27709-3528  
Tel: (919) 547-2000  
[www.basf.com/usa](http://www.basf.com/usa)

**Helping Make Products Better™**

Internal

For distribution and use only in the state of Maine

Imazapyr	Group	<b>2</b>	Herbicide
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## FIFRA Sec. 24(c) Special Local Need Label

# ARSENAL<sup>®</sup>

herbicide

## APPLICATORS CONCENTRATE

**For Jack Pine, Black Spruce, Red Spruce, and White Spruce release**

This special local need label expires on December 31, 2028 and must not be used or distributed after this date.

**Active Ingredient:**

Isopropylamine salt of imazapyr: (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-3-pyridinecarboxylic acid)\* ..... 53.1%

**Other Ingredients:** ..... 46.9%

**Total:** ..... 100.0%

\*Equivalent to 43.3% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-3-pyridinecarboxylic acid or 4 pounds acid per gallon

**EPA Reg. No. 241-299**

**EPA SLN No. ME-040001**

**CAUTION/PRECAUCION**

### Directions For Use

**Refer to the Arsenal<sup>®</sup> herbicide Applicators Concentrate main label, EPA Reg. No. 241-299, for complete Directions For Use and all applicable restrictions and precautions. When following the instructions on this label, the user must have this label and the entire Arsenal herbicide Applicators Concentrate container label in possession at the time of pesticide application.**

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

### Application Methods

**Conifer Release Treatment**

**Arsenal<sup>®</sup> herbicide Applicators Concentrate** may be used to release Jack Pine, Black Spruce, Red Spruce, and White Spruce from labeled brush, vine,

grass, and broadleaf weeds at rates less than 6 fl ozs/A when tank mixed with glyphosate.

A nonionic surfactant may be tank mixed at rates greater than 0.25% v/v when using less than 6 fl ozs/A of **Arsenal herbicide Applicators Concentrate**. The use of **Arsenal herbicide Applicators Concentrate** with more than 0.25% v/v nonionic surfactant can result in conifer growth inhibition or mortality, and should not be used if this type of conifer injury cannot be tolerated.

The use of **Arsenal herbicide Applicators Concentrate** rates below 6 fl ozs/A are intended for hardwood brush growth suppression and hardwood brush resprouting should be expected.

## Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S EXCLUSIVE REMEDY AND BASF'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE OF THE PRODUCT.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.**

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

1108

*Arsenal is a registered trademark of BASF.*

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000241-00299.20231129.NVA 2023-04-0104-0181  
Supersedes NVA 2021-04-104-0221

**24(c) registrant:**  
BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

September 7, 2017

Nina S. Rao  
Regulatory Manager  
BASF Corporation  
26 Davis Drive  
P. O. Box 13528  
Research Triangle Park, NC  
27709-3528

Subject: Notification per PRN 98-10 – Updating label language to specify NY State applicator requirements.  
Product Name: Arsenal Herbicide Applicators Concentrate  
EPA Registration Number: 241-299  
Application Date: 08/10/2017  
Decision Number: 532575

Dear Nina S. Rao:

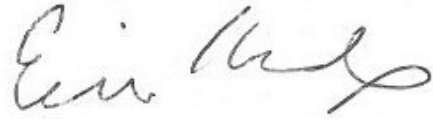
The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped “Notification” and will be placed in our records.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If you have any questions, you may contact Gene Kaudy at 703-347-0585 or via email at [kaudy.gene@epa.gov](mailto:kaudy.gene@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Erik Kraft". The signature is written in a cursive style with a large, looped initial "E".

Erik Kraft, Product Manager 24  
Fungicide and Herbicide Branch  
Registration Division (7505P)  
Office of Pesticide Programs

Enclosure



[Note to PM: This is the Front Panel/First Page of Booklet]

# ARSENAL®

herbicide

## APPLICATORS CONCENTRATE

**For the control of undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland, and nonagricultural lands; and for the establishment and maintenance of wildlife openings, release of unimproved Bermudagrass and Bahiagrass, bareground weed control, and for use under certain paved surfaces**

**Active Ingredient:**

isopropylamine salt of imazapyr: (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-3-pyridinecarboxylic acid)\* . . . . . 53.1%

**Other Ingredients:** . . . . . 46.9%

**Total:** . . . . . 100.0%

\* Equivalent to 43.3% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-3-pyridinecarboxylic acid or 4 pounds acid per gallon

**EPA Reg. No. 241-299**

**EPA Est. No.**

### KEEP OUT OF REACH OF CHILDREN CAUTION/PRECAUCION

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

FIRST AID	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• <b>DO NOT</b> induce vomiting unless told to by a poison control center or doctor.</li> <li>• <b>DO NOT</b> give anything to an unconscious person.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>• Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of an emergency endangering life or property involving this product, call BASF Corporation for emergency medical treatment information, day or night 1-800-832-HELP (4357).	

See inside booklet for complete **Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

**Net Contents:**

BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709

**NOTIFICATION**

241-299

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

09/07/2017



We create chemistry

## FIRST AID

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## Precautionary Statements

### Hazards to Humans and Domestic Animals

**CAUTION.** Harmful if swallowed. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist.

### Personal Protective Equipment (PPE)

**Mixers, loaders, applicators, and other handlers must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material such as barrier laminate, butyl rubber  $\geq$  14 mils, nitrile rubber  $\geq$  14 mils, neoprene rubber  $\geq$  14 mils, natural rubber  $\geq$  14 mils, polyethylene, polyvinyl chloride  $\geq$  14 mils, or viton  $\geq$  14 mils

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions are given for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

**DO NOT** reuse them.

### Engineering Controls

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

## USER SAFETY RECOMMENDATIONS

### Users should:

- Wash hands 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.
- 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.

## Physical and Chemical Hazards

Spray solutions of **Arsenal® herbicide Applicators Concentrate** must be mixed, stored and applied only in stainless steel, fiberglass, plastic and plastic-lined steel containers.

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.

## Environmental Hazards

This product is toxic to plants. Drift and runoff may be hazardous to plants in water adjacent to treated areas.

**DO NOT** apply to water except as specified in this label. Treatment of aquatic weeds may result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss may cause the suffocation of some aquatic organisms. **DO NOT** treat more than 1/2 of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to

move into untreated areas. **DO NOT** contaminate water when disposing of equipment washwaters or rinsate.

This pesticide is toxic to vascular plants and must be used strictly in accordance with the drift precautions on the label.

## Directions For Use

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

**Arsenal® herbicide Applicators Concentrate** must be used only in accordance with the instructions on the leaflet label attached to the container. Keep containers closed to avoid spills and contamination.

**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.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**DO NOT** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **48 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
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material
- Protective eyewear

### NONAGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) 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.

**DO NOT** enter or allow others to enter treated areas until sprays have dried.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

### Pesticide Storage

**DO NOT** store below 10° F.

### Pesticide Disposal

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

### Container Handling

**Nonrefillable Container. DO NOT reuse or refill this container.** Triple rinse or pressure rinse container

(or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

#### Triple rinse containers small enough to shake

**(capacity ≤ 5 gallons) 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.

#### Triple rinse containers too large to shake

**(capacity > 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable Container.** Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

(continued)

## STORAGE AND DISPOSAL *(continued)*

### Container Handling *(continued)*

**Triple rinse as follows:** To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

### In Case of Emergency

In case of large-scale spillage regarding this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

### Steps to be taken in case material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

## Product Information

**Arsenal® herbicide Applicators Concentrate** is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution to control undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland and nonagricultural lands. Aquatic sites consist of standing and flowing water, estuarine/marine, wetland, and riparian areas. Nonagricultural lands include private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - noncrop producing

(including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, barrier strips, etc.); industrial sites - outdoor (including lumberyards, pipeline and tank farms, etc.); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails). **Arsenal herbicide Applicators Concentrate** may also be used for the release of unimproved Bermudagrass and Bahiagrass, for bareground weed control, and for use under certain paved surfaces.

### Herbicidal Activity

**Arsenal herbicide Applicators Concentrate** will control most annual and perennial grass and broadleaf weeds in addition to many brush and vine species with some residual control of undesirable species that germinate above the waterline. **Arsenal herbicide Applicators Concentrate** is readily absorbed through emergent leaves and stems and is translocated rapidly throughout the plant with accumulation in the meristematic regions. For maximum activity, weeds should be growing vigorously at the time of application, and the spray solution should include a surfactant (see **Adjuvants** section for specific use directions). 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 or submerged storage organs, which prevents regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until 2 or more weeks after application. Complete kill of plants may not occur for several weeks. **Arsenal herbicide Applicators Concentrate** applications are rainfast 1 hour after treatment.

## Use Information

Applications may be made for the control of undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland and nonagricultural lands. Aquatic sites consist of standing and flowing water; estuarine/marine, wetland, and riparian areas; for control of most annual and perennial grass weeds, broadleaf weeds, vines and brambles, and hardwood brush and trees for forestry site preparation and release of conifers from woody and herbaceous competition. **Arsenal herbicide Applicators Concentrate** may be used for selective woody and herbaceous weed control in natural regeneration of certain conifers (see **Conifer Release Treatment**).

Nonagricultural lands include private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, barrier strips, etc.); industrial sites - outdoor (including lumberyards, pipeline and tank farms, etc.); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails).

## Precautions

- Keep from contact with fertilizers, insecticides, fungicides and seeds.
- Clean application equipment after using this product by thoroughly flushing with water.

## Restrictions

- **DO NOT** use on food crops.
- **DO NOT** apply this product within 1/2 mile upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond, or reservoir.
- **DO NOT** apply to water used for irrigation except as described in **Product Use Precautions and Restrictions** section of this label.
- **DO NOT** drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the treated soil may be washed or moved into contact with their roots.
- **DO NOT** use on lawns, walks, driveways, tennis courts, or similar areas.
- **DO NOT** side trim desirable vegetation with this product unless severe injury and plant death can be tolerated. Prevent drift of spray to desirable plants.

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## Site Specific Restrictions

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### Nonagricultural Lands and Forestry Sites

- **DO NOT** apply more than 1.5 lbs acid equivalent (ae) imazapyr (equivalent to 48 fl ozs of **Arsenal® herbicide Applicators Concentrate**) per acre per year.

### Pasture/Rangeland Sites

- For spot treatment only.
- **DO NOT** treat more than 1/10 of the available area to be grazed or cut for hay.
- **DO NOT** apply more than 0.75 lb ae imazapyr (equivalent to 24 fl ozs of **Arsenal herbicide Applicators Concentrate**) per acre per year.

### Aquatic Sites

- **DO NOT** apply more than 1.5 lbs ae imazapyr (equivalent to 48 fl ozs of **Arsenal herbicide Applicators Concentrate**) per acre per year.
- **Public waters** - Application of **Arsenal herbicide Applicators Concentrate** to water can only be made by federal or state agencies, such as Water Management District personnel, municipal officials, and the U.S. Army Corps of Engineers, or those applicators who are licensed or certified as aquatic pest control applicators and are authorized by the state or local government. Treatment to other than non-native invasive species is limited to only those plants that have been determined to be a nuisance by a federal or state government entity.
- **Aerial application** - Aerial application to aquatic sites is restricted to helicopter only.
- **Irrigation water** - Application to water used for irrigation that results in **Arsenal herbicide Applicators Concentrate** residue greater than 1.0 ppb **MUST NOT**

be used for irrigation purposes for 120 days after application or until **Arsenal herbicide Applicators Concentrate** residue levels are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less. When applications are made within 500 feet of an active irrigation intake, **DO NOT** irrigate for at least 24 hours following application to allow for dissipation.

### Recreational Use of Water in Treatment Area

There are no restrictions on the use of water in the treatment area for recreational purposes, including swimming and fishing.

### Livestock Use of Water in/from Treatment Area

There are no restrictions on livestock consumption of water from the treatment area.

### Potable Water Intakes

**DO NOT** apply **Arsenal herbicide Applicators Concentrate** directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water such as a lake, pond, or reservoir. To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake **must** be turned off during application and for a minimum of 48 hours after the application. These aquatic applications may be made only in the cases where there are alternative water sources or holding ponds that would permit the turning off of an active potable water intake for a minimum period of 48 hours after the applications.

**NOTE:** Existing potable water intakes that are no longer in use, such as those replaced by connections to wells or a municipal water system, are not considered to be active potable water intakes. This restriction does not apply to intermittent, inadvertent overspray of water in terrestrial use sites.

### Quiescent or Slow-moving Waters

In lakes and reservoirs, **DO NOT** apply **Arsenal herbicide Applicators Concentrate** within one (1) mile of an active irrigation water intake during the irrigation season. Applications less than one (1) mile from an active irrigation water intake may be made during the off-season, provided that the irrigation intake will remain inactive for a minimum of 120 days after application or until **Arsenal herbicide Applicators Concentrate** residue levels are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less.

### Avoiding Injury to Nontarget Plants

If treated vegetation is to be removed from the application site, **DO NOT** use the vegetative matter as mulch or compost on or around desirable species.

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## Precautions for Avoiding Injury to Nontarget Plants

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Untreated desirable plants can be affected by root uptake of **Arsenal® herbicide Applicators Concentrate** from treated soil. Injury or loss of desirable plants may result if **Arsenal herbicide Applicators Concentrate** is applied on or near desirable plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots. When making application along shorelines where desirable plants may be present, use caution to avoid spray contact with their foliage or spray application to the soil in which they are rooted. Shoreline plants that have roots which extend into the water in an area where **Arsenal herbicide Applicators Concentrate** has been applied generally will not be adversely affected by uptake of the herbicide from the water.

### Managing Off-target Movement

#### Aerial Application

- Applicators are required to use a coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet. Applicators are required to use a very coarse or coarser droplet size or, if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet. Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.
- Applicators are required to use upwind swath displacement.
- The boom length must not exceed 60% of the wingspan or 90% of the rotor blade diameter to reduce spray drift.
- Applications with wind speeds less than 3 mph and with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

#### Ground Boom Application

- Applicators are required to use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.
- Applications with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

#### Wind Erosion

Avoid treating powdery, dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.

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## Adjuvants

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Postemergence applications of **Arsenal herbicide Applicators Concentrate** require the addition of a spray adjuvant. When making aquatic applications, only spray adjuvants approved or appropriate for aquatic use must be utilized.

### Nonionic Surfactant

Use a nonionic surfactant (NIS) at the rate of 0.25% volume/volume (v/v) or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with an HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 with at least 70% surfactant in the formulated product. Alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements.

### Methylated Seed Oil or Vegetable Oil Concentrate

Instead of a surfactant, a methylated seed oil (MSO) or vegetable-based seed oil concentrate may be used at the rate of 1.5 to 2 pints per acre. When using spray volumes greater than 30 gallons per acre, methylated seed oil or vegetable-based seed oil concentrates should be mixed at a rate of 1% of the total spray volume, or alternatively use a nonionic surfactant as described above. Research indicates that these oils may aid in **Arsenal herbicide Applicators Concentrate** deposition and uptake by plants under moisture or temperature stress.

### Silicone-based Surfactant

See manufacturer's label for specific rates. Silicone-based surfactants may reduce the surface tension of the spray droplet allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

### Invert Emulsions

**Arsenal herbicide Applicators Concentrate** can be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray runoff, resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

### Other

An antifoaming agent, spray pattern indicator, or drift-reducing agent may be applied at the product labeled rate if necessary or desired.

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## Tank Mixes

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**Arsenal® herbicide Applicators Concentrate** may be tank mixed with other herbicides.

Consult manufacturer's labels for specific rate restrictions and weeds controlled. Always follow the more restrictive label restrictions and precautions for all products used when making an application involving tank mixes.

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## Application Methods

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**Arsenal herbicide Applicators Concentrate** may be selectively applied using low-volume directed application techniques or may be broadcast-applied using ground equipment, watercraft, or aircraft. Aerial applications to aquatic sites must be made by helicopter. In addition, **Arsenal herbicide Applicators Concentrate** may also be applied using cut-stump, cut-stem, and frill or girdle treatment techniques within nonagricultural lands, pasture/rangeland, and aquatic sites (see **Aerial Application** and **Ground Application** sections for additional details).

### Aerial Application

All precautions must be taken to minimize or eliminate spray drift. Both fixed-wing aircraft and helicopters can be used to apply **Arsenal herbicide Applicators Concentrate** on nonagricultural lands, but only helicopters can be used for aquatic applications. **DO NOT** make applications by fixed-wing aircraft or helicopter 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 specified label rate. **DO NOT** side trim with **Arsenal herbicide Applicators Concentrate** unless death of treated tree can be tolerated.

Uniformly apply the specified amount of **Arsenal herbicide Applicators Concentrate** in 2 to 30 gallons of water per acre. A foam-reducing agent may be added at the specified label rate, if needed.

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 Application

### Foliar Application

#### Low-volume Foliar Application

Use equipment calibrated to deliver 5 to 20 gallons of spray solution per acre. To prepare the spray solution, thoroughly mix in water 0.25% to 2.50% **Arsenal herbicide Applicators Concentrate** plus surfactant (see the **Adjuvants** section of this label for specific use directions). A foam-reducing agent may be applied at the specified label rate, if needed. For control of difficult species (see **Aquatic Weeds Controlled** section and the **Terrestrial 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 3 pints of **Arsenal herbicide Applicators Concentrate** per acre in aquatic sites and nonagricultural lands and 1.5 pints per acre in pasture/rangeland. Excessive wetting of foliage is not necessary.

For low-volume foliar application, select proper nozzles to avoid overapplication. Proper application is critical to ensure desirable results. Best results are achieved when the spray covers the crown and approximately 70 percent of the plant. The use of an even, flat-fan tip with a spray angle of 40 degrees or less will aid in proper deposition.

Appropriate tip sizes include 4004E or 1504E. For a straight-stream and cone pattern, adjustable cone nozzles, such as 5500 X3 or 5500 X4, may be used. Attaching a rollover valve onto a Spraying Systems Model 30 gunjet or other similar spray gun allows for the use of both flat-fan and cone tips on the same gun.

Moisten, but **DO NOT** drench target vegetation causing spray solution to run off.

**Low-volume Foliar Application with Backpack.** For low-growing species, spray down on the crown, covering crown and penetrating approximately 70% of the plant.

For target species 4 to 8 feet tall, swipe the sides of target vegetation by directing spray to at least 2 sides of the plant in smooth vertical motions from the crown to the bottom. Make sure to cover the crown whenever possible.

For target species over 8 feet tall, lace sides of the target vegetation by directing spray to at least 2 sides of the target in smooth zigzag motions from crown to bottom.

**Low-volume Foliar Application with Hydraulic Handgun Application Equipment.** Use the same technique as described above for **Low-volume Foliar Application with Backpack**.

For broadcast applications, simulate a gentle rain near the top of target vegetation allowing spray to contact the crown and penetrate the target foliage without falling to the understory. Herbicide spray solution that contacts the understory may result in severe injury or death of plants in the understory.

## High-volume Foliar Application

For optimum performance when spraying medium-density to high-density vegetation, use equipment calibrated to deliver up to 100 gallons of spray solution per acre (GPA). Spray solutions exceeding 100 GPA may result in excessive spray runoff, causing increased ground cover injury and injury to desirable species. To prepare the spray solution, thoroughly mix **Arsenal® herbicide Applicators Concentrate** in water and add a surfactant (see **Adjuvants** section for specific use directions and rates for surfactants). A foam-reducing agent may be added at the specified label rate, if needed. For control of difficult species (see **Aquatic Weeds Controlled** chart and the **Terrestrial 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 3 pints of **Arsenal herbicide Applicators Concentrate** per acre in aquatic sites and nonagricultural lands and 1.5 pints per acre in pasture/rangeland. Uniformly cover the foliage of the vegetation to be controlled, but **DO NOT** apply to runoff. Excessive wetting of foliage is not necessary.

## Side Trimming

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

## Cut-surface Treatment

**Arsenal herbicide Applicators Concentrate** may be used to control undesirable woody vegetation by applying the **Arsenal herbicide Applicators Concentrate** 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 runoff from the cut surface.

Injury may occur to desirable woody plants if the shoots extend from the same root system or their root systems are grafted to those of the treated tree.

## Cut-surface Application with Dilute and Concentrate Solutions

**Arsenal herbicide Applicators Concentrate** may be mixed as either a concentrate or dilute solution. The dilute solution may be used for applications to the cut surface of the stump or to cuts on the stem of the target woody vegetation. Concentrate solutions may be used for applications to cuts on the stem. Use of the concentrate solution permits application to fewer cuts on the stem, especially for large-diameter trees. Follow the application instructions for proper application techniques for each type of solution.

- To prepare a dilute solution, mix 4 to 6 fluid ounces of **Arsenal herbicide Applicators Concentrate** with

1 gallon of water. A surfactant or penetrating agent may improve uptake through partially callused cambiums.

- To prepare a concentrate solution, mix 1 quart of **Arsenal herbicide Applicators Concentrate** with no more than 1 pint of water.

## Cut-stump Treatment

**Dilute Solution.** Spray or brush the solution onto the cambium area of the freshly cut stump surface. Ensure that the solution thoroughly wets the entire cambium area (the wood next to the bark of the stump).

## Cut-stem Treatment (injection, hack-and-squirt)

**Dilute Solution.** Using standard injection equipment, apply 1 milliliter of solution at each injection site around the tree with no more than 1-inch intervals between cut edges. Ensure that the injector completely penetrates the bark at each injection site.

**Concentrate Solution.** Using standard injection equipment, apply 1 milliliter of solution at each injection site. Make at least 1 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 1 injection site, place the injection cuts at approximately equal intervals around the tree.

## Frill or Girdle Treatment

Using a hatchet, machete, or chainsaw, make cuts through the bark and completely around the tree to expose the cambium. The cut should angle downward extending into the cambium enough to expose at least 2 growth rings. Using a spray applicator or brush, apply a 12.5% to 50.0% solution of **Arsenal herbicide Applicators Concentrate** into each cut until thoroughly wet. Avoid applying so much herbicide that runoff to the ground or water occurs.



## Forestry Use

### Site Preparation Treatment

**Arsenal® herbicide Applicators Concentrate** may be used to control labeled grass weeds, broadleaf weeds, vines and brambles, and woody brush and trees on forest sites in advance of regeneration for the following conifer crop species:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine	<i>Pinus taeda</i>	24 to 40
Loblolly X pitch hybrid		
Longleaf pine	<i>Pinus palustris</i>	
Shortleaf pine	<i>Pinus echinata</i>	
Virginia pine	<i>Pinus virginiana</i>	
Slash pine	<i>Pinus elliotii</i>	20 to 32
Coastal redwood	<i>Sequoia sempervirens</i>	12 to 24
Douglas fir	<i>Pseudotsuga menziesii</i>	
Western hemlock	<i>Tsuga heterophylla</i>	
California red fir	<i>Abies magnifica</i>	12 to 20
California white fir	<i>Abies concolor</i>	
Jack pine	<i>Pinus banksiana</i>	12 to 16
Lodgepole pine	<i>Pinus contorta</i>	
Pitch pine	<i>Pinus rigida</i>	
Ponderosa pine	<i>Pinus ponderosa</i>	
Sugar pine	<i>Pinus lambertiana</i>	
White pine	<i>Pinus strobus</i>	
Black spruce	<i>Picea mariana</i>	
Red spruce	<i>Picea rubens</i>	
White spruce	<i>Picea glauca</i>	

Use the label rate of **Arsenal herbicide Applicators Concentrate** per acre applied as a broadcast foliar spray for long-term control of labeled woody plants and residual control of herbaceous weeds. Within 4 to 6 weeks of treatment, grass and other herbaceous weeds will be controlled and may provide fuel to facilitate a site preparation burn, if desired, to control conifers or other species tolerant to the herbicide.

Apply the label rate of **Arsenal herbicide Applicators Concentrate** per acre in 5 to 30 gallons total spray solution for helicopter applications or 5 to 100 gallons total spray solution for mechanical ground spray and backpack applications. Use a minimum of 1/2 percent by volume nonionic surfactant (NIS). Use the higher label rates of **Arsenal herbicide Applicators Concentrate** and higher spray volumes when controlling particularly dense or multi-layered canopies of hardwood stands, or difficult-to-control species.

In certain cases, tank mixes may be necessary for chemical control of conifers and other species tolerant to **Arsenal herbicide Applicators Concentrate**. Observe all precautions and restrictions on the product labels.

Always follow the most restrictive label. Combinations with other products labeled for forest site preparation may kill certain plants such as legumes and blackberry, which are desirable for wildlife habitat.

Where quick initial brownout (deadening of foliage) is desired for burning, apply a tank mixture of 16 fl ozs to 32 fl ozs **Arsenal herbicide Applicators Concentrate** with 16 ozs to 64 ozs glyphosate or 16 ozs to 48 ozs triclopyr ester per acre. For control of seedling pines, apply 16 fl ozs to 32 fl ozs **Arsenal herbicide Applicators Concentrate** with 3 to 4 quarts glyphosate. For site preparation, rates less than 24 fl ozs **Arsenal herbicide Applicators Concentrate** will provide suppression of hardwood brush and trees; some resprouting may occur.

**DO NOT** plant seedlings of black spruce (*Picea mariana*) or white spruce (*Picea glauca*) on sites that have been broadcast-treated with **Arsenal herbicide Applicators Concentrate** or into the treated zone of spot or banded applications for three months following application or injury may occur.

### Herbaceous Weed Control

Use **Arsenal herbicide Applicators Concentrate** for selective weeding in the following conifers:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine	<i>Pinus taeda</i>	6 to 10
Loblolly X pitch hybrid		
Virginia pine	<i>Pinus virginiana</i>	
Longleaf pine <sup>1</sup>	<i>Pinus palustris</i>	4 to 6
Slash pine <sup>1</sup>	<i>Pinus elliotii</i>	
Douglas fir <sup>1</sup>	<i>Pseudotsuga menziesii</i>	

<sup>1</sup> Use of surfactant is not recommended.

**Arsenal herbicide Applicators Concentrate** may be applied as a broadcast treatment, banded over tree rows, or as a directed spray for release of young conifers from herbaceous weeds. To prevent possibility of conifer injury, **DO NOT** apply **Arsenal herbicide Applicators Concentrate** when conifers are under stress from drought, disease, animal or winter injury, planting shock, or other stresses reducing conifer vigor. Broadcast applications may be made by helicopter, ground, or backpack sprayer. For difficult-to-control weeds, use the higher labeled rates. Where herbaceous weeds have overtopped conifer seedlings, a nonionic surfactant may be added to improve weed control (except for slash pine, long-leaf pine, and Douglas fir), at a rate not to exceed 1/4 percent of spray solution volume. Some minor conifer growth inhibition may be observed when herbaceous weed control treatments are made during periods of active conifer growth.

**Arsenal herbicide Applicators Concentrate** may also be applied using backpack or handheld sprayers to control herbaceous weeds around individual conifer seedlings. Mix 0.4 fl oz to 0.6 fl oz **Arsenal herbicide Applicators Concentrate** and 0.2 oz nonionic surfactant per gallon of

water. Direct the spray to the weeds and minimize the amount applied to conifer foliage for best conifer tolerance. Ensure that maximum labeled rates per acre for previously listed crop species are not exceeded.

**Arsenal® herbicide Applicators Concentrate** may be tank mixed with sulfometuron to broaden the spectrum of weeds controlled. For loblolly pine, apply 4 fl ozs to 6 fl ozs **Arsenal herbicide Applicators Concentrate** plus 1 oz to 2 ozs sulfometuron per acre. The application of **Arsenal herbicide Applicators Concentrate** plus sulfometuron on other conifer species may cause growth suppression.

### Conifer Release Treatment

**Arsenal herbicide Applicators Concentrate** may be applied as a broadcast or directed spray application for suppression of labeled brush, tree, and herbaceous weed species. Directed spray applications may be made with low-volume applications in conifer stands of all ages by targeting the unwanted vegetation and avoiding direct application to the conifer. Ensure that maximum labeled rates per acre listed for the following crop species are not exceeded.

#### Broadcast Applications for release of the following conifers from hardwood competition:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine <sup>3</sup>	<i>Pinus taeda</i>	12 to 20
Loblolly X pitch hybrid <sup>3</sup>		
Virginia pine <sup>3</sup>	<i>Pinus virginiana</i>	
Atlantic white cedar <sup>4</sup>	<i>Chamaecyparis thyoides</i>	12 to 16
Longleaf pine	<i>Pinus palustris</i>	
Pitch pine	<i>Pinus rigida</i>	
Shortleaf pine	<i>Pinus echinata</i>	
Slash pine	<i>Pinus elliotii</i>	
White pine <sup>1</sup>	<i>Pinus strobus</i>	8 to 16
California red fir	<i>Abies magnifica</i>	8 to 12
California white fir	<i>Abies concolor</i>	
Lodgepole pine <sup>2</sup>	<i>Pinus contorta</i>	
Douglas fir <sup>2</sup>	<i>Pseudotsuga menziesii</i>	
Jack pine <sup>2</sup>	<i>Pinus banksiana</i>	6 to 12
Black spruce <sup>2</sup>	<i>Picea mariana</i>	
Red spruce <sup>2</sup>	<i>Picea rubens</i>	
White spruce <sup>2</sup>	<i>Picea glauca</i>	

<sup>1</sup> **DO NOT** make applications to white pine stands younger than three years old. To minimize potential white pine injury, release treatments should not be made prior to July 15.

<sup>2</sup> Applications should be made after formation of final conifer resting buds in the fall or height growth inhibition may occur.

<sup>3</sup> **Mid-rotation release:** For broadcast applications below the pine canopy in established stands of loblolly pine, loblolly X pitch hybrid, and Virginia pine, use 16 fl ozs to 32 fl ozs product per acre. For mid-rotation release of other species, use rates listed in chart above.

<sup>4</sup> Apply **Arsenal herbicide Applicators Concentrate** after July 15 and before hardwood defoliation in the fall. The use of rates below 16 ozs/A are intended for hardwood growth suppression and some hardwood resprouting should be expected.

**For slash pine and longleaf pine, broadcast release treatments over the top of pines for the purpose of woody plant control must be made after August 15 and only in stands 2 through 5 years old. For applications over the top of slash pine and longleaf pine, DO NOT add surfactant and use lower labeled rates on sandy soils.**

Apply the label rate of **Arsenal herbicide Applicators Concentrate** per acre when making broadcast applications with helicopter or ground spray equipment. Refer to mixing and application instructions for proper spray volumes. A nonionic surfactant may be added at no more than 1/4 percent by volume.

Use the higher label rates of **Arsenal herbicide Applicators Concentrate** when controlling particularly dense stands or difficult-to-control species.

Some minor conifer growth inhibition may be observed when release treatments are made during periods of active conifer growth. To minimize potential conifer height growth inhibition, **DO NOT** make broadcast applications to conifer stands except loblolly pine before the end of the second growing season. To minimize potential conifer height growth inhibition, broadcast release treatments may be made late in the growing season. To prevent possibility of conifer injury, **DO NOT** apply **Arsenal herbicide Applicators Concentrate** when conifers are under stress from drought, disease, animal or winter injury, or other stresses reducing conifer vigor.

**Arsenal herbicide Applicators Concentrate** may be used to release loblolly pine seedlings during the first growing season following planting or for one-year-old natural loblolly pine regeneration. For one-year-old loblolly pine release, apply 12 fl ozs to 20 fl ozs/A of **Arsenal herbicide Applicators Concentrate** after July 15. Rates below 16 fl ozs/A are intended for hardwood growth suppression; some hardwood resprouting should be expected.

### Spot Treatment of Undesirable Hardwood Vegetation

**Arsenal herbicide Applicators Concentrate** may be used as a directed foliar or cut-stem application to control undesirable brush and hardwoods in the management of stands of all ages for the conifer species listed in the broadcast application section above. Refer to mixing and application instructions in the directed foliar or cut-stem sections above for proper use rates, equipment, and application techniques. **DO NOT** exceed maximum labeled rates per acre listed for crop species. Cut-stem applications may be used for spot treatment of undesirable hardwoods in Ponderosa pine stands using 12 fl ozs or less of product per acre.

Avoid direct application to desired plant species or injury may occur. Injury may occur to nontarget or desirable hardwoods or conifers if they extend from the same root system, or their root systems are grafted to those of the treated tree, or their roots extend into the treated zone.

## Late Rotation Vegetation Control in Western Conifer

In California, the Pacific Northwest and Inland Northwest, broadcast aerial applications of **Arsenal® herbicide Applicators Concentrate** up to 24 fl ozs/A are permissible in conifer stands that are targeted for harvesting the year following treatment. Use minimum spray volume of 15 gallons per acre. Significant conifer injury or mortality must be expected. **DO NOT** use this treatment if conifer injury or mortality cannot be tolerated.

## Bag and Spray Application for Conifer Release

In Douglas fir and Ponderosa pine stands, broadcast applications of **Arsenal herbicide Applicators Concentrate** up to 16 fl ozs/A are permissible when the trees are covered by bags prior to the application. The bags must prevent the spray mix from contacting the conifer foliage. On sites with coarse textured soils (e.g. decomposed granite, pumice, sandy or rocky sites) or low levels of soil organic matter (generally 5% or less), significant conifer growth inhibition and mortality is possible. **DO NOT** use this treatment on these types of sites if conifer growth inhibition and mortality cannot be tolerated.

### Nonagricultural Land Use

**Arsenal herbicide Applicators Concentrate** may be used for woody and herbaceous weed control in nonagricultural lands including private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - non-crop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, barrier strips, etc.); industrial sites - outdoor (including lumberyards, pipeline and tank farms, etc.); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails).

Applications to nonagricultural lands are not applicable to treatment of commercial timber or other plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

## Brush Control

Use the specified rate of **Arsenal herbicide Applicators Concentrate** with the preferred application technique for the control of undesirable brush.

### Tank Mixes and Application Rates for Low-volume Foliar Brush Control\*

Target Vegetation	Arsenal herbicide Applicators Concentrate Rate (by volume)	Tank Mix
Mixed hardwoods without elm, locust, or pine	0.50 to 0.75%	Surfactant
Mixed hardwoods containing elm, locust, and pine	0.25 to 0.50%	<b>Accord®</b> at 2% to 3% by volume plus surfactant
Mixed hardwoods with locust and pine but no elm	0.25 to 0.50%	<b>Krenite®</b> at 2% to 5% by volume plus surfactant
Mixed hardwoods with locust and elm but no pine	0.25 to 0.50%	<b>Escort®</b> at 2 ozs/A or 2.3 grams/gal plus surfactant

\* Tank mixes with 2,4-D or products containing 2,4-D have resulted in reduced **Arsenal herbicide Applicators Concentrate** efficacy.

### Backpack and Handheld Spray Mixing Guide

% Solution	Product per gallon of mix (fl ozs)	Product per 4-gallon backpack (fl ozs)
0.25%	0.3	1.3
0.5%	0.6	2.6
1.0%	1.3	5.1
2.0%	2.6	10.2
3.0%	3.8	15.4
5.0%	6.4	25.6

### Measuring Chart

128 ounces	=	1 gallon
16 ounces	=	1 pint
8 pints	=	1 gallon
4 quarts	=	1 gallon
2 pints	=	1 quart

## Selective Control of Undesirable Weeds in Unimproved Bermudagrass and Bahiagrass

**Arsenal® herbicide Applicators Concentrate** may be used on unimproved Bermudagrass and Bahiagrass turf such as roadsides, utility rights-of-way, and other nonagricultural lands. The application of **Arsenal herbicide Applicators Concentrate** on established common and coastal Bermudagrass and Bahiagrass provides control of labeled broadleaf and grass weeds. Competition from these weeds is eliminated, releasing the Bermudagrass and Bahiagrass. Treatment of Bermudagrass with **Arsenal herbicide Applicators Concentrate** results in a compacted growth habit and seedhead inhibition.

Uniformly apply with properly calibrated ground equipment using at least 10 gallons of water per acre.

Temporary yellowing of grass may occur when treatment is made after growth commences.

### Restrictions

- **DO NOT** add surfactant in excess of the specified rate (1 fl oz per 25 gallons of spray solution).
- **DO NOT** apply to grass during its first growing season.
- **DO NOT** apply to grass that is under stress from drought, disease, insects, or other causes.

### Dosage Rate and Timing

**Bermudagrass.** Apply **Arsenal herbicide Applicators Concentrate** at 3 fl ozs to 6 fl ozs per acre when the Bermudagrass is dormant. Apply **Arsenal herbicide Applicators Concentrate** at 3 fl ozs to 4 fl ozs per acre after the Bermudagrass has reached full greenup. Applications made during greenup will delay greenup. Include a surfactant in the spray solution.

For additional preemergence control of annual grass and small-seeded broadleaf weeds, add **Pendulum® AquaCap™ herbicide** at the rate of 3.1 to 6.3 pints per acre. Consult the **Pendulum AquaCap** label for weeds controlled and for other use directions and precautions.

For control of Johnsongrass in Bermudagrass turf, apply **Arsenal herbicide Applicators Concentrate** at 4 fl ozs per acre, plus **Roundup® herbicide** at 12 ozs per acre, plus surfactant. For additional control of broadleaves and vines, **Garlon® 3A herbicide** may be added to the above mix at the rate of 1 to 2 pints per acre. Observe all precautions and restrictions on the **Garlon 3A** and **Roundup** labels.

**Bahiagrass.** Apply **Arsenal herbicide Applicators Concentrate** at 2 fl ozs to 4 fl ozs per acre when the Bahiagrass is dormant or after the grass has initiated greenup but has not exceeded 25% greenup. Include a surfactant in the spray solution (see **Adjuvants** section for specific use directions for surfactants).

## Weeds Controlled in Unimproved Bermudagrass and Bahiagrass

Common Name	Scientific Name
Bedstraw*	<i>Galium</i> spp.
Bishopweed*	<i>Ptilimnium capillaceum</i>
Buttercup*	<i>Ranunculus parviflorus</i>
Carolina geranium	<i>Geranium carolinianum</i>
Fescue	<i>Festuca</i> spp.
Foxtail	<i>Setaria</i> spp.
Little barley	<i>Hordeum pusillum</i>
Seedling Johnsongrass	<i>Sorghum halepense</i>
White clover	<i>Trifolium repens</i>
Wild carrot	<i>Daucus carota</i>
Yellow woodsorrel	<i>Oxalis stricta</i>

\* Use not permitted in California unless otherwise directed by supplemental labeling.

### Grass Growth and Seedhead Suppression

**Arsenal herbicide Applicators Concentrate** may be used to suppress growth and seedhead development of certain turfgrass in unimproved areas. When **Arsenal herbicide Applicators Concentrate** is applied to desirable turf, it may result in temporary turf damage and/or discoloration. Effects to the desirable turf may vary with environmental conditions. For optimum performance, application should be made prior to culm elongation. Applications may be made before or after mowing. If applied prior to mowing, allow at least 3 days of active growth before mowing. If applied following a mowing, allow sufficient time for the grasses to recover before applying this product or injury may be amplified.

**DO NOT APPLY** to turf under stress (drought, cold, insect damage, etc.) or severe injury or death may occur.

**Bermudagrass.** Apply **Arsenal herbicide Applicators Concentrate** at 3 fl ozs to 4 fl ozs per acre from early greenup to prior to seedhead initiation. **DO NOT** add a surfactant for this application.

**Cool-season Unimproved Turf.** Apply **Arsenal herbicide Applicators Concentrate** at 1 fl oz per acre plus 0.25% nonionic surfactant. For increased suppression, **Arsenal herbicide Applicators Concentrate** may be tank mixed with such products as **Campaign® herbicide** (24 ozs per acre) or **Embark® growth regulator** (8 ozs per acre). Tank mixes may increase injury to desired turf. Consult each product label for labeled turf species and other use directions and precautions. Tank mixes with 2,4-D or products containing 2,4-D may decrease the effectiveness of **Arsenal herbicide Applicators Concentrate**.

## Total Vegetation Control where Bare Ground is Desired

**Arsenal® herbicide Applicators Concentrate** is an effective herbicide for preemergence or postemergence control of many annual and perennial broadleaf and grass weeds where bare ground is desired. **Arsenal herbicide Applicators Concentrate** is particularly effective on hard-to-control perennial grasses. **Arsenal herbicide Applicators Concentrate** at 0.75 to 3 pints per acre can be used alone or in tank mix with herbicides approved for use in bare ground. The degree and duration of control are dependent on the rate of **Arsenal herbicide Applicators Concentrate** used, tank mix partner, the volume of carrier, soil texture, rainfall, and other conditions.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label restrictions and precautions for all products used when making an application involving tank mixes.

Applications of **Arsenal herbicide Applicators Concentrate** may be made any time of the year. Use equipment calibrated to deliver desired gallons per acre spray volume and uniformly distribute the spray pattern over the treated area.

**Postemergence Application.** Always use a spray adjuvant (see **Adjuvants** section of this label) when making a postemergence application. For optimum performance on tough-to-control annual grass weeds, apply at a total volume of 100 gallons per acre or less. For quicker burndown or brownout of target weeds, **Arsenal herbicide Applicators Concentrate** may be tank mixed with **Roundup® herbicide**. Tank mixes with 2,4-D or products containing 2,4-D may reduce the performance of **Arsenal herbicide Applicators Concentrate**. Always follow the more restrictive label restrictions and precautions for all products used when tank mixing.

**Spot Treatment. Arsenal herbicide Applicators Concentrate** may be used as a follow-up treatment to control escapes or weed encroachment in a bareground situation. To prepare the spray solution, thoroughly mix in each gallon of water 0.25% to 2.5% **Arsenal herbicide Applicators Concentrate** plus an adjuvant. For increased burndown, include **Roundup** as a tank mixture. For added residual weed control or to increase the weed spectrum, add **Pendulum® AquaCap™ herbicide**, **Overdrive® herbicide**, or diuron. Always follow the more restrictive label restrictions and precautions for all products used when tank mixing.

## Control of Undesirable Weeds under Paved Surfaces

**Arsenal herbicide Applicators Concentrate** can be used under asphalt, pond liners and other paved areas, **ONLY** in industrial sites or where the pavement has a suitable barrier along the perimeter that prevents encroachment of roots of desirable plants.

Use **Arsenal herbicide Applicators Concentrate** only where the area to be treated has been prepared according to good construction practices. If rhizomes, stolons, tubers or other vegetative plant parts are present in the site, remove them by scalping with a grader blade to a depth sufficient to ensure their complete removal.

Follow **Arsenal herbicide Applicators Concentrate** applications with paving as soon as possible. **DO NOT** apply where the chemical may contact the roots of desirable trees or other plants.

This product is not to be used under pavement on residential properties, such as driveways or parking lots, or for use in recreational areas, such as under bike or jogging paths, golf cart paths, or tennis courts, or where landscape plantings could be anticipated.

Injury or death of desirable plants may result if this product is applied where roots are present or where roots may extend into the treated area. Roots of trees and shrubs may extend a considerable distance beyond the branch extremities (drip line).

Apply to the soil surface only when final grade is established. **DO NOT** move soil following **Arsenal herbicide Applicators Concentrate** application.

Apply **Arsenal herbicide Applicators Concentrate** in sufficient water (at least 100 gals per acre) to ensure thorough and uniform wetting of the soil surface, including the shoulder areas. Add **Arsenal herbicide Applicators Concentrate** at a rate of 3 pints per acre (1.1 fluid ounces per 1000 square feet) to clean water in the spray tank during the filling operation. Agitate before spraying.

If the soil is not moist prior to treatment, incorporation of **Arsenal herbicide Applicators Concentrate** is needed for herbicide activation. Incorporate **Arsenal herbicide Applicators Concentrate** into the soil to a depth of 4 to 6 inches using a rototiller or disc. Rainfall or irrigation of 1 inch will also provide uniform incorporation. **DO NOT** allow treated soil to wash or move into untreated areas.

## Spot Treatment and Crack-and-crevice Treatment

Use **Arsenal herbicide Applicators Concentrate** as an initial or follow-up treatment to control weed escapes or weed encroachment in a bareground situation, including cracks and crevices in paved surfaces such as roadways, runways, and parking areas.

## Grass Pasture and Rangeland Spot Treatment Weed Control

For the control of undesirable vegetation in grass pasture and rangeland, **Arsenal herbicide Applicators Concentrate** may be applied as a spot treatment at a rate of 1 to 24 fluid ounces of product per treated acre using any of the described ground application methods. Spot applications to grass pasture and rangeland may not exceed more than 1/10 of the area to be grazed or cut for

hay. See appropriate sections of this label for specific use directions for the application method and vegetation control desired. **DO NOT** apply more than 24 fluid ounces per acre per year.

### Grazing and Haying Restrictions

- There are no grazing restrictions following **Arsenal® herbicide Applicators Concentrate** application.
- **DO NOT** cut forage grass for hay for 7 days after **Arsenal herbicide Applicators Concentrate** application.

### Rangeland Use Instructions

**Arsenal herbicide Applicators Concentrate** may be applied to rangeland for the control of undesirable vegetation to achieve one or more of the following vegetation management objectives:

- Control of undesirable (nonnative, invasive and noxious) plant species
- Control of undesirable vegetation to aid in the establishment of desirable rangeland plant species
- Control of undesirable vegetation to aid in the establishment of desirable rangeland vegetation following a fire
- Control of undesirable vegetation to reduce wildfire fuel
- Release of existing desirable rangeland plant communities from the competitive pressure of undesirable plant species
- Control of undesirable vegetation for wildlife habitat improvement

To ensure the protection of threatened and endangered plants when applying **Arsenal herbicide Applicators Concentrate** to rangeland:

- Federal agencies must follow NEPA regulations to ensure protection of threatened and endangered plants.
- State agencies must work with the Fish and Wildlife Service or the Service's designated state conservation agency to ensure protection of threatened and endangered plants.
- Other organizations or individuals must operate under a habitat conservation plan if threatened or endangered plants are known to be present on the land to be treated.

See the appropriate section(s) of this label for specific use directions for the desired rangeland vegetation management objective.

**Arsenal herbicide Applicators Concentrate** must only be applied to a given rangeland acre as specific weed problems arise. Long-term control of undesirable weed species ultimately depends on the successful use of land management practices that promote the growth and sustainability of desirable rangeland plant species.

### Rotational Crop Instructions

Rotational crops may be planted 12 months after applying **Arsenal herbicide Applicators Concentrate** at the specified pasture and rangeland rate. Following 12 months after an **Arsenal herbicide Applicators Concentrate**

application and before planting any crop, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted in the previously treated area in the grass pasture/rangeland and grown to maturity. The test strip should include low areas and knolls and include variations in soil type and pH within the treated area. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year.

Use of **Arsenal herbicide Applicators Concentrate** in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

### Aquatic Weed Control

**Arsenal herbicide Applicators Concentrate** may be applied for the control of floating and emergent undesirable vegetation (see the **Aquatic Weeds Controlled** and the **Terrestrial Weeds Controlled** section) in or near bodies of water that may be flowing, nonflowing, or transient.

**Arsenal herbicide Applicators Concentrate** may be applied to aquatic sites that include lakes, rivers, streams, ponds, seeps, drainage ditches, canals, reservoirs, swamps, bogs, marshes, estuaries, bays, brackish water, transitional areas between terrestrial and aquatic sites, riparian sites, and seasonal wet areas. See **Product Use Precautions and Restrictions** section of this label for precautions, restrictions, and instructions on aquatic uses.

Read and observe the following directions if aquatic sites are present in nonagricultural lands and are part of the intended treatment area.

**Arsenal herbicide Applicators Concentrate** must be applied to the emergent foliage of the target vegetation and has little-to-no activity on submerged aquatic vegetation.

**Arsenal herbicide Applicators Concentrate** concentrations resulting from direct application to water are not expected to be of sufficient concentration nor duration to provide control of target vegetation. Application should be made in such a way as to maximize spray interception by the target vegetation while minimizing the amount of overspray that enters the water.

**Arsenal herbicide Applicators Concentrate** does not control plants that are completely submerged or have a majority of their foliage under water.

**Arsenal herbicide Applicators Concentrate** may be applied with surface or helicopter application equipment in a minimum of 2 gallons of water per acre. When applying by helicopter, follow directions under the **Aerial Application** section of this label; otherwise, refer to the **Ground Application** section when using surface equipment.

Applications to moving bodies of water should be made while traveling upstream to prevent concentration of this

herbicide in water. **DO NOT** apply to bodies of water or portions of bodies of water where emergent and/or floating weeds do not exist.

When application is to be made to target vegetation that covers a large percentage of the surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in the suffocation of some sensitive aquatic organisms. If oxygen depletion is a concern, treat no more than 1/2 of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas.

Avoid washoff of sprayed foliage by spray boat or recreational boat backwash for 1 hour after application.

Apply **Arsenal® herbicide Applicators Concentrate** at 1 to 3 pints per acre depending on species present and weed density. **DO NOT** exceed the maximum label rate of 3 pints per acre (1.5 lbs ae/A) per year. Use the higher labeled rates for heavy weed pressure. Consult the **Aquatic Weeds Controlled** section and the **Terrestrial Weeds Controlled** section of this label for specific rates.

**Arsenal herbicide Applicators Concentrate** may be applied as a draw-down treatment in areas described above. Apply **Arsenal herbicide Applicators Concentrate** to weeds after water has been drained and allow 14 days before reintroduction of water.

**Permitting** - Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

**Private waters** - Applications may be made to private waters that are still, such as ponds, lakes, and drainage ditches where there is minimal or no outflow to public waters.

In New York state, a permit is required for application to private water bodies.

## Weeds Controlled

### Aquatic Weeds Controlled

**Arsenal® herbicide Applicators Concentrate** will control the following target species as specified in the **Use Rates and Application Directions** column of the table. Rates are expressed in terms of product volume for broadcast applications and as a % solution for directed applications including spot treatments. **For % solution applications, DO NOT apply more than the equivalent of 3 pints of Arsenal herbicide Applicators Concentrate per acre.**

Common Name	Scientific Name	Use Rates and Application Directions
<b>Floating</b>		
*Floating heart	<i>Nymphodes</i> spp.	1 to 2 pints/A (0.25 to 0.50% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Frogbit	<i>Limnobium spongia</i>	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Spatterdock	<i>Nuphar luteum</i>	Apply a tank mix of 1 to 2 pints/A <b>Arsenal herbicide Applicators Concentrate</b> + 4 to 6 pints/A glyphosate (0.25% <b>Arsenal herbicide Applicators Concentrate</b> + 1.5% glyphosate) in 100 GPA water for best control. Ensure 100% coverage of actively growing emergent foliage.
*Water hyacinth	<i>Eichhornia crassipes</i>	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water to actively growing foliage.
*Water lettuce	<i>Pistia stratiotes</i>	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
<b>Emerged</b>		
*Alligatorweed	<i>Alternanthera philoxeroides</i>	0.5 to 2.0 pints/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Arrowhead, duck-potato	<i>Sagittaria</i> spp.	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Bacopa, lemon	<i>Bacopa</i> spp.	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Parrot feather	<i>Myriophyllum aquaticum</i>	Must be foliage above water for sufficient <b>Arsenal herbicide Applicators Concentrate</b> uptake. Apply 1 to 2 pints/A to actively growing emergent foliage.
*Pennywort	<i>Hydrocotyle</i> spp.	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Pickerelweed	<i>Pontederia cordata</i>	1.0 to 1.5 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Taro, wild Dasheen Elephant's ear Coco yam	<i>Colocasia esculentum</i>	2 to 3 pints/A (0.75% solution) applied in 100 GPA with a high quality sticker adjuvant. Ensure good coverage of actively growing emergent foliage.

\*Use not permitted in California unless otherwise directed by supplemental labeling.

(continued)



## Aquatic Weeds Controlled *(continued)*

Common Name	Scientific Name	Use Rates and Application Directions
<b>Emerged</b> <i>(continued)</i>		
*Water chestnut	<i>Trappa natans</i>	2 to 3 pints/A (0.75% solution) applied in 100 GPA with a high quality sticker adjuvant. Ensure good coverage of actively growing emergent foliage.
*Water lily	<i>Nymphaea odorata</i>	1.0 to 1.5 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Water primrose	<i>Ludwigia uruguayensis</i>	2 to 3 pints/A (0.75% solution). Ensure 100% coverage of actively growing emergent foliage.
<b>Terrestrial/Marginal</b>		
*Soda apple, Aquatic nightshade	<i>Solanum tampicense</i>	1 pint/A applied to foliage
*Bamboo, Japanese	<i>Phyllostachys</i> spp.	1.5 to 2.0 pints/A applied to the foliage when plant is actively growing; before setting seedhead. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Beach, vitex	<i>Vitex rotundifolia</i>	2.5% solution + 1% MSO foliar spray. 8.5% solution stem injection (hack and squirt)
Brazilian pepper Christmasberry	<i>Schinus terebinthifolius</i>	1 to 2 pints/A applied to foliage
Cattail	<i>Typha</i> spp.	1 to 2 pints/A (0.5% solution) applied to actively growing green foliage after full leaf elongation. Lower rates will control cattail in the North; higher rates are needed in the South.
Chinese tallow tree	<i>Sapium sebiferum</i>	8 to 12 fl ozs/A applied to foliage
Cogongrass	<i>Imperata cylindrica</i>	Burn foliage, till area; then fall-spray 1 quart/A <b>Arsenal® herbicide Applicators Concentrate</b> + MSO applied to new growth.
Cordgrass, prairie	<i>Spartina</i> spp.	2 to 3 pints/A applied to actively growing foliage
*Cutgrass	<i>Zizaniopsis miliacea</i>	2 to 3 pints/A applied to actively growing foliage
*Elephant grass Napier grass	<i>Pennisetum purpureum</i>	1.5 pints/A applied to actively growing foliage
*Flowering rush	<i>Butomus umbellatus</i> L.	1.0 to 1.5 pints/A applied to actively growing foliage
Giant reed Wild cane	<i>Arundo donax</i>	2 to 3 pints/A applied in spring to actively growing foliage
*Golden bamboo	<i>Phyllostachys aurea</i>	1.5 to 2.0 pints/A applied to foliage when plant is actively growing; before setting seedhead. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Junglerice	<i>Echinochloa colonum</i>	1.5 to 2.0 pints/A applied to actively growing foliage
Knapweed	<i>Centaurea</i> spp.	Russian knapweed: 1.0 to 1.5 pints + 1 quart/A MSO fall-applied after senescence begins
Knotweed, Japanese	<i>Polygonum cuspidatum</i> <i>Fallopia japonica</i>	1.5 to 2.0 pints/A applied postemergence to actively growing foliage

\*Use not permitted in California unless otherwise directed by supplemental labeling.

*(continued)*

## Aquatic Weeds Controlled *(continued)*

Common Name	Scientific Name	Use Rates and Application Directions
<b>Terrestrial/Marginal</b> <i>(continued)</i>		
Melaleuca Paperbark tree	<i>Melaleuca quinquenervia</i>	<p><b>For established stands</b>, apply 3 pints/A <b>Arsenal® herbicide Applicators Concentrate</b> + 6 pints/A glyphosate + spray adjuvant. For best results, use 4 quarts/A methylated seed oil as an adjuvant.</p> <p><b>For ground foliar application</b>, uniformly apply to ensure 100% coverage.</p> <p><b>For broadcast foliar control</b>, apply aerially in a minimum of 2 passes at 10 gallons/A applied cross treatment.</p> <p><b>For spot treatment</b>, use a 12.5% <b>Arsenal herbicide Applicators Concentrate</b> + 25% solution of glyphosate + 1.25% MSO in water applied as a frill or stump treatment.</p>
*Nutgrass Kili'p'opu	<i>Cyperus rotundus</i>	1 pint <b>Arsenal herbicide Applicators Concentrate</b> + 1 quart/A MSO applied early postemergence
*Nutsedge	<i>Cyperus</i> spp.	1.0 to 1.5 pints postemergence to foliage or preemergence incorporated, nonincorporated, preemergence applications will not control.
Phragmites Common reed	<i>Phragmites australis</i>	2 to 3 pints/A applied to actively growing green foliage after full leaf elongation. Ensure 100% coverage. If stand has a substantial amount of old stem tissue, mow or burn, allow to regrow to approximately 5 feet tall before treatment. Lower rates will control phragmites in the North; higher rates are needed in the South.
*Poison hemlock	<i>Conium maculatum</i>	1 pint <b>Arsenal herbicide Applicators Concentrate</b> + 1 quart/A MSO applied preemergence to early postemergence to rosette prior to flowering
Purple loosestrife	<i>Lythrum salicaria</i>	0.5 pint/A applied to actively growing foliage
Reed canarygrass	<i>Phalaris arundinacea</i>	1.5 to 2.0 pints/A applied to actively growing foliage
Rose, swamp	<i>Rosa palustris</i>	1.0 to 1.5 pints/A applied to actively growing foliage
Russian olive	<i>Elaeagnus angustifolia</i>	1 to 2 pints/A or a 0.5% solution applied to foliage
Saltcedar Tamarisk	<i>Tamarix</i> spp.	Aerial apply 1 quart <b>Arsenal herbicide Applicators Concentrate</b> + 0.25% v/v NIS to actively growing foliage during flowering. For spot spraying, use 0.5% solution of <b>Arsenal herbicide Applicators Concentrate</b> + 0.25% v/v NIS and spray to wet foliage. After application, wait at least 2 years before disturbing treated saltcedar. Earlier disturbance can reduce overall control.
Smartweed	<i>Polygonum</i> spp.	1 pint/A applied early postemergence
Sumac	<i>Rhus</i> spp.	1.0 to 1.5 pints/A applied to foliage
Swamp morningglory Water spinach Kangkong	<i>Ipomoea aquatica</i>	0.5 to 1.0 pint/A <b>Arsenal herbicide Applicators Concentrate</b> + 1 quart/A MSO applied early postemergence

\*Use not permitted in California unless otherwise directed by supplemental labeling.

*(continued)*

**Aquatic Weeds Controlled** *(continued)*

Common Name	Scientific Name	Use Rates and Application Directions
<b>Terrestrial/Marginal</b> <i>(continued)</i>		
Torpedo grass	<i>Panicum repens</i>	2 pints/A (0.50 to 0.75% solution); ensure good coverage to actively growing foliage
*White top Hoary cress	<i>Cardaria draba</i>	0.5 to 1.0 pint/A applied in spring to foliage during flowering
Willow	<i>Salix</i> spp.	1.0 to 1.5 pints/A <b>Arsenal® herbicide Applicators Concentrate</b> applied to actively growing foliage. Ensure good coverage

\*Use not permitted in California unless otherwise directed by supplemental labeling.

## Terrestrial Weed Control

In terrestrial sites, **Arsenal® herbicide Applicators Concentrate** will provide preemergence or postemergence control with residual control of the following target vegetation species at the rates listed. Residual control refers to control of newly germinating seedlings in both annuals and perennials. In general, annual weeds may be controlled by preemergence or postemergence applications of **Arsenal herbicide Applicators Concentrate**. For established biennials and perennials, postemergence applications of **Arsenal herbicide Applicators Concentrate** will provide the best control.

The rates shown below pertain to broadcast applications and indicate the relative sensitivity of these weeds. The relative sensitivity should be referenced when preparing low-volume spray solutions (see **Low-volume Foliar Application** section of **Ground Application**); low-volume applications may provide control of the target species with less **Arsenal herbicide Applicators Concentrate** per acre than is shown for the broadcast treatments. Use **Arsenal herbicide Applicators Concentrate** only in accordance with the specific use directions on this label and the leaflet label.

The relative sensitivity of the species listed following can also be used to determine the relative risk of causing non-target plant injury if any of the species listed following are considered to be desirable within the area to be treated.

**Resistant Biotypes.** Naturally occurring biotypes (a plant within a given species that has a slightly different but distinct genetic makeup from other plants of the same species) of some weeds listed on this label may not be effectively controlled. If naturally occurring, resistant biotypes are present in an area, **Arsenal herbicide Applicators Concentrate** should be tank mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

### Grass Weeds

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.0 to 1.5 pts/A<sup>1</sup></b>		
Annual bluegrass	<i>Poa annua</i>	A
Broadleaf signalgrass	<i>Brachiaria platyphylla</i>	A
Canada bluegrass	<i>Poa compressa</i>	P
Downy brome	<i>Bromus tectorum</i>	A
Fescue	<i>Festuca</i> spp.	A/P
Foxtail	<i>Setaria</i> spp.	A
Italian ryegrass	<i>Lolium multiflorum</i>	A
Johnsongrass <sup>4</sup>	<i>Sorghum halepense</i>	P
Kentucky bluegrass	<i>Poa pratensis</i>	P
Napier grass <sup>5</sup>	<i>Pennisetum purpureum</i>	P
Orchardgrass	<i>Dactylis glomerata</i>	P
Paragrass	<i>Brachiaria mutica</i>	P
Quackgrass	<i>Agropyron repens</i>	P

(continued)

### Grass Weeds (continued)

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.0 to 1.5 pts/A<sup>1</sup> (continued)</b>		
Sandbur	<i>Cenchrus</i> spp.	A
Smooth brome	<i>Bromus inermis</i>	P
Vaseygrass	<i>Paspalum urvillei</i>	P
Wild oats	<i>Avena fatua</i>	A
Witchgrass	<i>Panicum capillare</i>	A
<b>Apply 1.5 to 2.0 pts/A<sup>1</sup></b>		
Barnyardgrass	<i>Echinochloa crus-galli</i>	A
Beardgrass	<i>Andropogon</i> spp.	P
Bluegrass, annual	<i>Poa annua</i>	A
Bulrush <sup>5</sup>	<i>Scirpus validus</i>	P
Cogongrass	<i>Imperata cylindrica</i>	P
Cheat	<i>Bromus secalinus</i>	A
Crabgrass	<i>Digitaria</i> spp.	A
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	A
Fall panicum	<i>Panicum dichotomiflorum</i>	A
Goosegrass	<i>Eleusine indica</i>	A
Itchgrass	<i>Rottboellia exaltata</i>	A
Lovegrass <sup>4</sup>	<i>Eragrostis</i> spp.	P
Maidencane <sup>5</sup>	<i>Panicum hemitomon</i>	A
Panicum, browntop	<i>Panicum fasciculatum</i>	A
Panicum, Texas	<i>Panicum texanum</i>	A
Prairie threeawn	<i>Aristida oligantha</i>	P
Sandbur, field	<i>Cenchrus incertus</i>	A
Signalgrass	<i>Brachiaria platyphylla</i>	A
Wild barley	<i>Hordeum</i> spp.	A
Woolly cupgrass	<i>Eriochloa villosa</i>	A

### Apply 2 to 3 pts/A<sup>1</sup>

Bahiagrass	<i>Paspalum notatum</i>	P
Bermudagrass <sup>3, 4</sup>	<i>Cynodon dactylon</i>	P
Big bluestem	<i>Andropogon gerardii</i>	P
Dallisgrass	<i>Paspalum dilatatum</i>	P
Feathertop	<i>Pennisetum villosum</i>	P
Guineagrass	<i>Panicum maximum</i>	P
Saltgrass <sup>3</sup>	<i>Distichlis stricta</i>	P
Sand dropseed	<i>Sporobolus cryptandrus</i>	P
Sprangletop	<i>Leptochloa</i> spp.	A
Timothy	<i>Phleum pratense</i>	P
Wirestem muhly	<i>Muhlenbergia frondosa</i>	P

<sup>1</sup> Use higher rates where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use a minimum of 75 GPA.

<sup>4</sup> Use higher labeled rates.

<sup>5</sup> Use not permitted in California unless otherwise directed by supplemental labeling.

## Broadleaf Weeds

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.0 to 1.5 pts/A<sup>1</sup></b>		
Burdock	<i>Arctium</i> spp.	B
Carolina geranium	<i>Geranium carolinianum</i>	A
Carpetweed	<i>Mollugo verticillata</i>	A
Clover	<i>Trifolium</i> spp.	A/P
Common chickweed	<i>Stellaria media</i>	A
Common ragweed	<i>Ambrosia artemisiifolia</i>	A
Dandelion	<i>Taraxacum officinale</i>	P
Dogfennel	<i>Eupatorium capillifolium</i>	A
Filaree	<i>Erodium</i> spp.	A
Fleabane	<i>Erigeron</i> spp.	A
Hoary vervain	<i>Verbena stricta</i>	P
Indian mustard	<i>Brassica juncea</i>	A
Kochia	<i>Kochia scoparia</i>	A
Lambsquarters	<i>Chenopodium album</i>	A
Lespedeza <sup>3</sup>	<i>Lespedeza</i> spp.	P
Miner's lettuce	<i>Montia perfoliata</i>	A
Mullein	<i>Verbascum</i> spp.	B
Nettleleaf goosefoot	<i>Chenopodium murale</i>	A
Oxeye daisy	<i>Chrysanthemum leucanthemum</i>	P
Pepperweed	<i>Lepidium</i> spp.	A
Pigweed	<i>Amaranthus</i> spp.	A
Puncturevine	<i>Tribulus terrestris</i>	A
Russian thistle	<i>Salsola kali</i>	A
Smartweed	<i>Polygonum</i> spp.	A/P
Sorrell	<i>Rumex</i> spp.	P
Sunflower	<i>Helianthus</i> spp.	A
Sweet clover	<i>Melilotus</i> spp.	A/B
Tansymustard	<i>Descurainia pinnata</i>	A
Western ragweed	<i>Ambrosia psilostachya</i>	P
Wild carrot	<i>Daucus carota</i>	B
Wild lettuce	<i>Lactuca</i> spp.	A/B
Wild parsnip	<i>Pastinaca sativa</i>	B
Wild turnip	<i>Brassica campestris</i>	B
Woollyleaf bursage	<i>Franseria tomentosa</i>	P
Yellow woodsorrel	<i>Oxalis stricta</i>	P

### Apply 1.5 to 2.0 pts/A<sup>1</sup>

Broom snakeweed <sup>4</sup>	<i>Gutierrezia sarothrae</i>	P
Bull thistle	<i>Cirsium vulgare</i>	B
Burclover	<i>Medicago</i> spp.	A
Chickweed, mouseear	<i>Cerastium vulgatum</i>	A
Clover, hop	<i>Trifolium procumbens</i>	A
Cocklebur	<i>Xanthium strumarium</i>	A
Cudweed	<i>Gnaphalium</i> spp.	A
Desert camelthorn	<i>Alhagi pseudalhagi</i>	P
Dock	<i>Rumex</i> spp.	P
Fiddleneck	<i>Amsinckia intermedia</i>	A
Goldenrod	<i>Solidago</i> spp.	P
Henbit	<i>Lamium amplexicaule</i>	A
Knotweed, prostrate	<i>Polygonum aviculare</i>	A/P

(continued)

## Broadleaf Weeds (continued)

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.5 to 2.0 pts/A<sup>1</sup> (continued)</b>		
Pokeweed	<i>Phytolacca americana</i>	P
Purslane	<i>Portulaca</i> spp.	A
Pusley, Florida	<i>Richardia scabra</i>	A
Rocket, London	<i>Sisymbrium irio</i>	A
Rush skeletonweed <sup>4</sup>	<i>Chondrilla juncea</i>	B
Saltbush	<i>Atriplex</i> spp.	A
Shepherdspurse	<i>Capsella bursa-pastoris</i>	A
Spurge, annual	<i>Euphorbia</i> spp.	A
Stinging nettle <sup>4</sup>	<i>Urtica dioica</i>	P
Velvetleaf	<i>Abutilon theophrasti</i>	A
Yellow starthistle	<i>Centaurea solstitialis</i>	A

### Apply 2 to 3 pts/A<sup>1</sup>

Arrowwood	<i>Pluchea sericea</i>	A
Canada thistle	<i>Cirsium arvense</i>	P
Giant ragweed	<i>Ambrosia trifida</i>	A
Gray rabbitbrush	<i>Chrysothamnus nauseosus</i>	P
Little mallow	<i>Malva parviflora</i>	B
Milkweed	<i>Asclepias</i> spp.	P
Primrose	<i>Oenothera kunthiana</i>	P
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	P
Sowthistle	<i>Sonchus</i> spp.	A
Texas thistle	<i>Cirsium texanum</i>	P

<sup>1</sup> Use higher rates where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use not permitted in California unless otherwise directed by supplemental labeling.

<sup>4</sup> For best results, early postemergence applications are required.

## Vines and Brambles

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 0.5 pt/A</b>		
Field bindweed	<i>Convolvulus arvensis</i>	P
Hedge bindweed	<i>Calystegia sepium</i>	A
<b>Apply 1.0 to 1.5 pts/A<sup>1</sup></b>		
Wild buckwheat	<i>Polygonum convolvulus</i>	P
<b>Apply 1.5 to 2.0 pts/A<sup>1</sup></b>		
Greenbriar	<i>Smilax</i> spp.	P
Honeysuckle <sup>3</sup>	<i>Lonicera</i> spp.	P
Morningglory	<i>Ipomoea</i> spp.	A/P
Poison ivy	<i>Rhus radicans</i>	P
Redvine	<i>Brunnichia cirrhosa</i>	P
Wild rose <sup>3</sup>	<i>Rosa</i> spp.	P
including:		
Multiflora rose	<i>Rosa multiflora</i>	P
Macartney rose	<i>Rosa bracteata</i>	P

### Apply 2 to 3 pts/A<sup>1</sup>

Trumpet creeper	<i>Campsis radicans</i>	P
Virginia creeper	<i>Parthenocissus quinquefolia</i>	P
Wild grape	<i>Vitis</i> spp.	P

<sup>1</sup> Use higher rate where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use higher labeled rates.

## Brush Species

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1 to 2 pts/A<sup>1</sup></b>		
Brazilian peppertree	<i>Schinus terebinthifolius</i>	P
Chinese tallow tree	<i>Sapium sebiferum</i>	P
Popcorn tree		
Russian olive	<i>Elaeagnus angustifolia</i>	P
Sumac	<i>Rhus</i> spp.	P
Willow	<i>Salix</i> spp.	P

### Apply 2 to 3 pts/A<sup>1</sup>

Alder	<i>Alnus</i> spp.	P
American beech	<i>Fagus grandifolia</i>	P
Ash <sup>3</sup>	<i>Fraxinus</i> spp.	P
Aspen	<i>Populus</i> spp.	P
Autumn olive	<i>Elaeagnus umbellata</i>	P
Bald cypress	<i>Taxodium distichum</i>	P
Bigleaf maple	<i>Acer macrophyllum</i>	P
Birch <sup>3</sup>	<i>Betula</i> spp.	P
Black gum <sup>4</sup>	<i>Nyssa sylvatica</i>	P
Black locust <sup>5</sup>	<i>Robinia pseudoacacia</i>	P
Black oak	<i>Quercus kelloggii</i>	P
Boxelder	<i>Acer negundo</i>	P
Ceanothis	<i>Ceanothis</i> spp.	P
Cherry <sup>3,4</sup>	<i>Prunus</i> spp.	P
Chinaberry	<i>Melia azedarach</i>	P

(continued)

## Brush Species (continued)

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 2 to 3 pts/A<sup>1</sup> (continued)</b>		
Chinquapin	<i>Castanopsis chrysophylla</i>	P
Cottonwood	<i>Populus trichocarpa</i> <i>P. deltoides</i>	P
Cypress	<i>Taxodium</i> spp.	P
Dogwood <sup>3</sup>	<i>Cornus</i> spp.	P
Elm <sup>6</sup>	<i>Ulmus</i> spp.	P
Eucalyptus	<i>Eucalyptus</i> spp.	P
Hawthorn	<i>Crataegus</i> spp.	P
Hickory <sup>3</sup>	<i>Carya</i> spp.	P
Honeylocust <sup>5</sup>	<i>Gleditsia triacanthos</i>	P
Huckleberry	<i>Gaylussacia</i> spp.	P
Lyonia spp.		
including:		
Fetterbush	<i>Lyonia lucida</i>	
Staggerbush	<i>Lyonia mariana</i>	P
Madrone	<i>Arbutus menziesii</i>	P
Maple	<i>Acer</i> spp.	P
Melaleuca	<i>Melaleuca quinquenervia</i>	P
Mulberry <sup>3,7</sup>	<i>Morus</i> spp.	P
Oak <sup>8</sup>	<i>Quercus</i> spp.	P
Persimmon <sup>4</sup>	<i>Diospyros virginiana</i>	P
Pine <sup>5,10</sup>	<i>Pinus</i> spp.	P
Poison oak	<i>Rhus diversiloba</i>	P
Poplar	<i>Populus</i> spp.	P
Privet	<i>Ligustrum vulgare</i>	P
Red alder	<i>Alnus rubra</i>	P
Red maple	<i>Acer rubrum</i>	P
Saltcedar	<i>Tamarix pentandra</i>	P
Sassafras	<i>Sassafras albidum</i>	P
Sourwood <sup>4</sup>	<i>Oxydendrum arboreum</i>	P
Sweetgum	<i>Liquidambar styraciflua</i>	P
Sycamore	<i>Platanus occidentalis</i>	P
Tanoak <sup>3</sup>	<i>Lithocarpus densiflorus</i>	P
Titi <sup>9</sup>	<i>Cyrilla racemiflora</i>	P
Tree of heaven	<i>Ailanthus altissima</i>	P
Vaccinium spp.		
including:		
Blueberry	<i>Vaccinium</i> spp.	
Sparkleberry	<i>Vaccinium arboreum</i>	P
Water willow <sup>10</sup>	<i>Justicia americana</i>	P
Yellow poplar <sup>3</sup>	<i>Liriodendron tulipifera</i>	P

<sup>1</sup> Use the higher rates where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use higher labeled rates.

<sup>4</sup> Best control with applications prior to formation of fall leaf color

<sup>5</sup> Tank mix with glyphosate or triclopyr

<sup>6</sup> Tank mix with glyphosate

<sup>7</sup> Degree of control may be species dependent.

<sup>8</sup> For water oak (*Quercus nigra*), laurel oak (*Q. lauriflora*), willow oak (*Q. phellos*) and live oak (*Q. virginiana*), use higher labeled rates.

<sup>9</sup> Suppression only

<sup>10</sup> Use not permitted in California unless otherwise directed by supplemental labeling.

## Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S EXCLUSIVE REMEDY AND BASF'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE OF THE PRODUCT.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.**

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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000241-00299.20170810.**NVA 2017-04-104-0175**  
Supersedes: NVA 2016-04-104-0107

BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709

  
We create chemistry

# Arsenal<sup>®</sup>

Herbicide

## Applicators Concentrate

For the control of undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland, and nonagricultural lands; and for the establishment and maintenance of wildlife openings, release of unimproved Bermudagrass and Bahiagrass, bareground weed control, and for use under certain paved surfaces

**Active Ingredient:**

isopropylamine salt of imazapyr: (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid) \* ..... 53.1%

**Other Ingredients:** ..... 46.9%

**Total:** ..... 100.0%

\* Equivalent to 43.3% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 4 pounds acid per gallon

EPA Reg. No. 241-299

EPA Est. No. 241-PR-002

## KEEP OUT OF REACH OF CHILDREN CAUTION/PRECAUCION

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

**FIRST AID: 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 by a poison control center or doctor. **DO NOT** give anything to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. 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 in eyes:** Hold eyes open and rinse slowly and gently with water for 15 to 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. **HOTLINE NUMBER:** Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of an emergency endangering life or property involving this product, call BASF Corporation for emergency medical treatment information, day or night 1-800-832-HELP (4357).

See inside booklet for complete **Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

Net Contents: **2.5 Gallons**

81045263 NVA 2017-05-104-0198  
Product of U.S.A.

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26 Davis Drive  
Research Triangle Park, NC 27709

  
We create chemistry



## FIRST AID

<b>If swallowed</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• <b>DO NOT</b> induce vomiting unless told to by a poison control center or doctor.</li><li>• <b>DO NOT</b> give anything to an unconscious person.</li></ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>If inhaled</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
<b>If in eyes</b>	<ul style="list-style-type: none"><li>• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes.</li><li>• Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>

## HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of an emergency endangering life or property involving this product, call BASF Corporation for emergency medical treatment information, day or night 1-800-832-HELP (4357).

## Precautionary Statements

### Hazards to Humans and Domestic Animals

**CAUTION.** Harmful if swallowed. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist.

### Personal Protective Equipment (PPE)

**Mixers, loaders, applicators, and other handlers must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material such as barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, natural rubber ≥ 14 mils, polyethylene, polyvinyl chloride ≥ 14 mils, or viton ≥ 14 mils

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

### Engineering Controls

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

## USER SAFETY RECOMMENDATIONS

### Users should:

- Wash hands 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.
- 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.

## Physical and Chemical Hazards

Spray solutions of **Arsenal® herbicide Applicators Concentrate** must be mixed, stored and applied only in stainless steel, fiberglass, plastic and plastic-lined steel containers.

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.

## Environmental Hazards

This product is toxic to plants. Drift and runoff may be hazardous to plants in water adjacent to treated areas. **DO NOT** apply to water except as specified in this label. Treatment of aquatic weeds may result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss may cause the suffocation of some aquatic organisms. **DO NOT** treat more than 1/2 of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas. **DO NOT** contaminate water when disposing of equipment washwaters or rinsate.

This pesticide is toxic to vascular plants and must be used strictly in accordance with the drift precautions on the label.

## Directions For Use

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

**Arsenal herbicide Applicators Concentrate** must be used only in accordance with the instructions on the leaflet label attached to the container. Keep containers closed to avoid spills and contamination.

**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.

## AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**DO NOT** enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **48 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
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material
- Protective eyewear

## NONAGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) 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.

**DO NOT** enter or allow others to enter treated areas until sprays have dried.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

### Pesticide Storage

**DO NOT** store below 10° F.

### Pesticide Disposal

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

### Container Handling

**Nonrefillable Container. DO NOT reuse or refill this container.**

Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

**Triple rinse containers small enough to shake (capacity  $\leq$  5 gallons) 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.

(continued)

## STORAGE AND DISPOSAL (continued)

### Container Handling (continued)

**Triple rinse containers too large to shake (capacity > 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable Container.** Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Triple rinse as follows:** To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

## In Case of Emergency

In case of large-scale spillage regarding this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

### Steps to be taken in case material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

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## Product Information

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**Arsenal® herbicide Applicators Concentrate** is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution to control undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland and nonagricultural lands. Aquatic sites consist of standing and flowing water, estuarine/marine, wetland, and riparian areas. Nonagricultural lands include private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, barrier strips, etc.); industrial sites - outdoor (including lumberyards, pipeline and tank farms, etc.); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails).

**Arsenal herbicide Applicators Concentrate** may also be used for the release of unimproved Bermudagrass and Bahiagrass, for bareground weed control, and for use under certain paved surfaces.

### Herbicidal Activity

**Arsenal herbicide Applicators Concentrate** will control most annual and perennial grass and broadleaf weeds in addition to many brush and vine species with some residual control of undesirable species that germinate above the waterline. **Arsenal herbicide Applicators Concentrate** is readily absorbed through emergent leaves and stems and is translocated rapidly throughout the plant with accumulation in the meristematic regions. For maximum activity, weeds should be growing vigorously at the time of application, and the spray solution should include a surfactant (see **Adjuvants** section for specific use directions). 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 or submerged storage organs, which prevents regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until 2 or more weeks after application. Complete kill of plants may not occur for several weeks. **Arsenal herbicide Applicators Concentrate** applications are rainfast 1 hour after treatment.

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## Use Information

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Applications may be made for the control of undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland and nonagricultural lands. Aquatic sites consist of standing and flowing water; estuarine/marine, wetland, and riparian areas; for control of most annual and perennial grass weeds, broadleaf weeds, vines and brambles, and hardwood brush and trees for forestry site preparation and release of conifers from woody and herbaceous competition. **Arsenal herbicide Applicators Concentrate** may be used for selective woody and herbaceous weed control in natural regeneration of certain conifers (see **Conifer Release Treatment**).

Nonagricultural lands include private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, barrier strips, etc.); industrial sites - outdoor (including lumberyards, pipeline and tank farms, etc.); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails).

### Precautions

- Keep from contact with fertilizers, insecticides, fungicides and seeds.
- Clean application equipment after using this product by thoroughly flushing with water.

### Restrictions

- **DO NOT** use on food crops.
- **DO NOT** apply this product within 1/2 mile upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond, or reservoir.
- **DO NOT** apply to water used for irrigation except as described in **Product Use Precautions and Restrictions** section of this label.
- **DO NOT** drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the treated soil may be washed or moved into contact with their roots.
- **DO NOT** use on lawns, walks, driveways, tennis courts, or similar areas.
- **DO NOT** side trim desirable vegetation with this product unless severe injury and plant death can be tolerated. Prevent drift of spray to desirable plants.

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## Site Specific Restrictions

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### Nonagricultural Lands and Forestry Sites

- **DO NOT** apply more than 1.5 lbs acid equivalent (ae) imazapyr (equivalent to 48 fl ozs of **Arsenal herbicide Applicators Concentrate**) per acre per year.

### Pasture/Rangeland Sites

- For spot treatment only.
- **DO NOT** treat more than 1/10 of the available area to be grazed or cut for hay.
- **DO NOT** apply more than 0.75 lb ae imazapyr (equivalent to 24 fl ozs of **Arsenal herbicide Applicators Concentrate**) per acre per year.

### Aquatic Sites

- **DO NOT** apply more than 1.5 lbs ae imazapyr (equivalent to 48 fl ozs of **Arsenal herbicide Applicators Concentrate**) per acre per year.
- **Public waters** - Application of **Arsenal herbicide Applicators Concentrate** to water can only be made by federal or state agencies, such as Water Management District personnel, municipal officials, and the U.S. Army Corps of Engineers, or those applicators who are licensed or certified as aquatic pest control applicators and are authorized by the state or local government. Treatment to other than non-native invasive species is limited to only those plants that have been determined to be a nuisance by a federal or state government entity.
- **Aerial application** - Aerial application to aquatic sites is restricted to helicopter only.
- **Irrigation water** - Application to water used for irrigation that results in **Arsenal herbicide Applicators Concentrate** residue greater than 1.0 ppb **MUST NOT** be used for irrigation purposes for 120 days after application or until **Arsenal herbicide Applicators Concentrate** residue levels are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less. When applications are made within 500 feet of an active irrigation intake, **DO NOT** irrigate for at least 24 hours following application to allow for dissipation.

### Recreational Use of Water in Treatment Area

There are no restrictions on the use of water in the treatment area for recreational purposes, including swimming and fishing.

### Livestock Use of Water in/from Treatment Area

There are no restrictions on livestock consumption of water from the treatment area.

## Potable Water Intakes

**DO NOT** apply **Arsenal® herbicide Applicators Concentrate** directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water such as a lake, pond, or reservoir. To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake **must** be turned off during application and for a minimum of 48 hours after the application. These aquatic applications may be made only in the cases where there are alternative water sources or holding ponds that would permit the turning off of an active potable water intake for a minimum period of 48 hours after the applications.

**NOTE:** Existing potable water intakes that are no longer in use, such as those replaced by connections to wells or a municipal water system, are not considered to be active potable water intakes. This restriction does not apply to intermittent, inadvertent overspray of water in terrestrial use sites.

## Quiescent or Slow-moving Waters

In lakes and reservoirs, **DO NOT** apply **Arsenal herbicide Applicators Concentrate** within one (1) mile of an active irrigation water intake during the irrigation season. Applications less than one (1) mile from an active irrigation water intake may be made during the off-season, provided that the irrigation intake will remain inactive for a minimum of 120 days after application or until **Arsenal herbicide Applicators Concentrate** residue levels are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less.

## Avoiding Injury to Nontarget Plants

If treated vegetation is to be removed from the application site, **DO NOT** use the vegetative matter as mulch or compost on or around desirable species.

## Precautions for Avoiding Injury to Nontarget Plants

Untreated desirable plants can be affected by root uptake of **Arsenal herbicide Applicators Concentrate** from treated soil. Injury or loss of desirable plants may result if **Arsenal herbicide Applicators Concentrate** is applied on or near desirable plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots. When making application along shorelines where desirable plants may be present, use caution to avoid spray contact with their foliage or spray application to the soil in which they are rooted. Shoreline plants that have roots which extend into the water in an area where **Arsenal herbicide Applicators Concentrate** has been applied generally will not be adversely affected by uptake of the herbicide from the water.

## Managing Off-target Movement

### Aerial Application

- Applicators are required to use a coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet. Applicators are required to use a very coarse or coarser droplet size or, if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet. Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.
- Applicators are required to use upwind swath displacement.
- The boom length must not exceed 60% of the wingspan or 90% of the rotor blade diameter to reduce spray drift.
- Applications with wind speeds less than 3 mph and with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

## Ground Boom Application

- Applicators are required to use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.
- Applications with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

## Wind Erosion

Avoid treating powdery, dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.

## Adjuvants

Postemergence applications of **Arsenal herbicide Applicators Concentrate** require the addition of a spray adjuvant. When making aquatic applications, only spray adjuvants approved or appropriate for aquatic use must be utilized.

## Nonionic Surfactant

Use a nonionic surfactant (NIS) at the rate of 0.25% volume/volume (v/v) or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with an HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 with at least 70% surfactant in the formulated product. Alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements.

## Methylated Seed Oil or Vegetable Oil Concentrate

Instead of a surfactant, a methylated seed oil (MSO) or vegetable-based seed oil concentrate may be used at the rate of 1.5 to 2 pints per acre. When using spray volumes greater than 30 gallons per acre, methylated seed oil or vegetable-based seed oil concentrates should be mixed at a rate of 1% of the total spray volume, or alternatively use a nonionic surfactant as described above. Research indicates that these oils may aid in **Arsenal herbicide Applicators Concentrate** deposition and uptake by plants under moisture or temperature stress.

## Silicone-based Surfactant

See manufacturer's label for specific rates. Silicone-based surfactants may reduce the surface tension of the spray droplet allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

## Invert Emulsions

**Arsenal herbicide Applicators Concentrate** can be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray runoff, resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

## Other

An antifoaming agent, spray pattern indicator, or drift-reducing agent may be applied at the product labeled rate if necessary or desired.

## Tank Mixes

**Arsenal herbicide Applicators Concentrate** may be tank mixed with other herbicides.

Consult manufacturer's labels for specific rate restrictions and weeds controlled. Always follow the more restrictive label restrictions and precautions for all products used when making an application involving tank mixes.

## Application Methods

**Arsenal® herbicide Applicators Concentrate** may be selectively applied using low-volume directed application techniques or may be broadcast-applied using ground equipment, watercraft, or aircraft. Aerial applications to aquatic sites must be made by helicopter. In addition, **Arsenal herbicide Applicators Concentrate** may also be applied using cut-stump, cut-stem, and frill or girdle treatment techniques within nonagricultural lands, pasture/rangeland, and aquatic sites (see **Aerial Application** and **Ground Application** sections for additional details).

### Aerial Application

All precautions must be taken to minimize or eliminate spray drift. Both fixed-wing aircraft and helicopters can be used to apply **Arsenal herbicide Applicators Concentrate** on nonagricultural lands, but only helicopters can be used for aquatic applications. **DO NOT** make applications by fixed-wing aircraft or helicopter 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 rain-drop nozzles, must be used and calibrated. Except when applying with a **Microfoil boom**, a drift control agent may be added at the specified label rate. **DO NOT** side trim with **Arsenal herbicide Applicators Concentrate** unless death of treated tree can be tolerated.

Uniformly apply the specified amount of **Arsenal herbicide Applicators Concentrate** in 2 to 30 gallons of water per acre. A foam-reducing agent may be added at the specified label rate, if needed.

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 Application

#### Foliar Application

##### Low-volume Foliar Application

Use equipment calibrated to deliver 5 to 20 gallons of spray solution per acre. To prepare the spray solution, thoroughly mix in water 0.25% to 2.50% **Arsenal herbicide Applicators Concentrate** plus surfactant (see the **Adjuvants** section of this label for specific use directions). A foam-reducing agent may be applied at the specified label rate, if needed. For control of difficult species (see **Aquatic Weeds Controlled** section and the **Terrestrial 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 3 pints of **Arsenal herbicide Applicators Concentrate** per acre in aquatic sites and nonagricultural lands and 1.5 pints per acre in pasture/rangeland. Excessive wetting of foliage is not necessary.

For low-volume foliar application, select proper nozzles to avoid overapplication. Proper application is critical to ensure desirable results. Best results are achieved when the spray covers the crown and approximately 70 percent of the plant. The use of an even, flat-fan tip with a spray angle of 40 degrees or less will aid in proper deposition.

Appropriate tip sizes include 4004E or 1504E. For a straight-stream and cone pattern, adjustable cone nozzles, such as 5500 X3 or 5500 X4, may be used. Attaching a rollover valve onto a Spraying Systems Model 30 gun-jet or other similar spray gun allows for the use of both flat-fan and cone tips on the same gun.

Moisten, but **DO NOT** drench target vegetation causing spray solution to run off.

**Low-volume Foliar Application with Backpack.** For low-growing species, spray down on the crown, covering crown and penetrating approximately 70% of the plant.

For target species 4 to 8 feet tall, swipe the sides of target vegetation by directing spray to at least 2 sides of the plant in smooth vertical motions from the crown to the bottom. Make sure to cover the crown whenever possible.

For target species over 8 feet tall, lace sides of the target vegetation by directing spray to at least 2 sides of the target in smooth zigzag motions from crown to bottom.

**Low-volume Foliar Application with Hydraulic Handgun Application Equipment.** Use the same technique as described above for **Low-volume Foliar Application with Backpack**.

For broadcast applications, simulate a gentle rain near the top of target vegetation allowing spray to contact the crown and penetrate the target foliage without falling to the understory. Herbicide spray solution that contacts the understory may result in severe injury or death of plants in the understory.

##### High-volume Foliar Application

For optimum performance when spraying medium-density to high-density vegetation, use equipment calibrated to deliver up to 100 gallons of spray solution per acre (GPA). Spray solutions exceeding 100 GPA may result in excessive spray runoff, causing increased ground cover injury and injury to desirable species. To prepare the spray solution, thoroughly mix **Arsenal herbicide Applicators Concentrate** in water and add a surfactant (see **Adjuvants** section for specific use directions and rates for surfactants). A foam-reducing agent may be added at the specified label rate, if needed.

For control of difficult species (see **Aquatic Weeds Controlled** chart and the **Terrestrial 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 3 pints of **Arsenal herbicide Applicators Concentrate** per acre in aquatic sites and nonagricultural lands and 1.5 pints per acre in pasture/rangeland. Uniformly cover the foliage of the vegetation to be controlled, but **DO NOT** apply to runoff. Excessive wetting of foliage is not necessary.

##### Side Trimming

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

##### Cut-surface Treatment

**Arsenal herbicide Applicators Concentrate** may be used to control undesirable woody vegetation by applying the **Arsenal herbicide Applicators Concentrate** 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 runoff from the cut surface.

Injury may occur to desirable woody plants if the shoots extend from the same root system or their root systems are grafted to those of the treated tree.

## Cut-surface Application with Dilute and Concentrate Solutions

**Arsenal® herbicide Applicators Concentrate** may be mixed as either a concentrate or dilute solution. The dilute solution may be used for applications to the cut surface of the stump or to cuts on the stem of the target woody vegetation. Concentrate solutions may be used for applications to cuts on the stem. Use of the concentrate solution permits application to fewer cuts on the stem, especially for large-diameter trees. Follow the application instructions for proper application techniques for each type of solution.

- To prepare a dilute solution, mix 4 to 6 fluid ounces of **Arsenal herbicide Applicators Concentrate** with 1 gallon of water. A surfactant or penetrating agent may improve uptake through partially callused cambiums.
- To prepare a concentrate solution, mix 1 quart of **Arsenal herbicide Applicators Concentrate** with no more than 1 pint of water.

## Cut-stump Treatment

**Dilute Solution.** Spray or brush the solution onto the cambium area of the freshly cut stump surface. Ensure that the solution thoroughly wets the entire cambium area (the wood next to the bark of the stump).

## Cut-stem Treatment (injection, hack-and-squirt)

**Dilute Solution.** Using standard injection equipment, apply 1 milliliter of solution at each injection site around the tree with no more than 1-inch intervals between cut edges. Ensure that the injector completely penetrates the bark at each injection site.

**Concentrate Solution.** Using standard injection equipment, apply 1 milliliter of solution at each injection site. Make at least 1 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 1 injection site, place the injection cuts at approximately equal intervals around the tree.

## Frill or Girdle Treatment

Using a hatchet, machete, or chainsaw, make cuts through the bark and completely around the tree to expose the cambium. The cut should angle downward extending into the cambium enough to expose at least 2 growth rings. Using a spray applicator or brush, apply a 12.5% to 50.0% solution of **Arsenal herbicide Applicators Concentrate** into each cut until thoroughly wet. Avoid applying so much herbicide that runoff to the ground or water occurs.

## Forestry Use

### Site Preparation Treatment

**Arsenal herbicide Applicators Concentrate** may be used to control labeled grass weeds, broadleaf weeds, vines and brambles, and woody brush and trees on forest sites in advance of regeneration for the following conifer crop species:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine	<i>Pinus taeda</i>	24 to 40
Loblolly X pitch hybrid		
Longleaf pine	<i>Pinus palustris</i>	
Shortleaf pine	<i>Pinus echinata</i>	
Virginia pine	<i>Pinus virginiana</i>	20 to 32
Slash pine	<i>Pinus elliottii</i>	
Coastal redwood	<i>Sequoia sempervirens</i>	12 to 24
Douglas fir	<i>Pseudotsuga menziesii</i>	
Western hemlock	<i>Tsuga heterophylla</i>	
California red fir	<i>Abies magnifica</i>	12 to 20
California white fir	<i>Abies concolor</i>	
Jack pine	<i>Pinus banksiana</i>	12 to 16
Lodgepole pine	<i>Pinus contorta</i>	
Pitch pine	<i>Pinus rigida</i>	
Ponderosa pine	<i>Pinus ponderosa</i>	
Sugar pine	<i>Pinus lambertiana</i>	
White pine	<i>Pinus strobus</i>	
Black spruce	<i>Picea mariana</i>	
Red spruce	<i>Picea rubens</i>	
White spruce	<i>Picea glauca</i>	

Use the label rate of **Arsenal herbicide Applicators Concentrate** per acre applied as a broadcast foliar spray for long-term control of labeled woody plants and residual control of herbaceous weeds. Within 4 to 6 weeks of treatment, grass and other herbaceous weeds will be controlled and may provide fuel to facilitate a site preparation burn, if desired, to control conifers or other species tolerant to the herbicide.

Apply the label rate of **Arsenal herbicide Applicators Concentrate** per acre in 5 to 30 gallons total spray solution for helicopter applications or 5 to 100 gallons total spray solution for mechanical ground spray and backpack applications. Use a minimum of 1/2 percent by volume nonionic surfactant (NIS). Use the higher label rates of **Arsenal herbicide Applicators Concentrate** and higher spray volumes when controlling particularly dense or multilayered canopies of hardwood stands, or difficult-to-control species.

In certain cases, tank mixes may be necessary for chemical control of conifers and other species tolerant to **Arsenal herbicide Applicators Concentrate**. Observe all precautions and restrictions on the product labels. Always follow the most restrictive label. Combinations with other products labeled for forest site preparation may kill certain plants such as legumes and blackberry, which are desirable for wildlife habitat.

Where quick initial brownout (deadening of foliage) is desired for burning, apply a tank mixture of 16 fl ozs to 32 fl ozs **Arsenal® herbicide Applicators Concentrate** with 16 ozs to 64 ozs glyphosate or 16 ozs to 48 ozs triclopyr ester per acre. For control of seedling pines, apply 16 fl ozs to 32 fl ozs **Arsenal herbicide Applicators Concentrate** with 3 to 4 quarts glyphosate. For site preparation, rates less than 24 fl ozs **Arsenal herbicide Applicators Concentrate** will provide suppression of hardwood brush and trees; some resprouting may occur.

**DO NOT** plant seedlings of black spruce (*Picea mariana*) or white spruce (*Picea glauca*) on sites that have been broadcast-treated with **Arsenal herbicide Applicators Concentrate** or into the treated zone of spot or banded applications for three months following application or injury may occur.

## Herbaceous Weed Control

Use **Arsenal herbicide Applicators Concentrate** for selective weeding in the following conifers:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine	<i>Pinus taeda</i>	6 to 10
Loblolly X pitch hybrid		
Virginia pine	<i>Pinus virginiana</i>	
Longleaf pine <sup>1</sup>	<i>Pinus palustris</i>	4 to 6
Slash pine <sup>1</sup>	<i>Pinus elliottii</i>	
Douglas fir <sup>1</sup>	<i>Pseudotsuga menziesii</i>	

<sup>1</sup> Use of surfactant is not recommended.

**Arsenal herbicide Applicators Concentrate** may be applied as a broadcast treatment, banded over tree rows, or as a directed spray for release of young conifers from herbaceous weeds. To prevent possibility of conifer injury, **DO NOT** apply **Arsenal herbicide Applicators Concentrate** when conifers are under stress from drought, disease, animal or winter injury, planting shock, or other stresses reducing conifer vigor. Broadcast applications may be made by helicopter, ground, or backpack sprayer. For difficult-to-control weeds, use the higher labeled rates. Where herbaceous weeds have overtopped conifer seedlings, a nonionic surfactant may be added to improve weed control (except for slash pine, long-leaf pine, and Douglas fir), at a rate not to exceed 1/4 percent of spray solution volume. Some minor conifer growth inhibition may be observed when herbaceous weed control treatments are made during periods of active conifer growth.

**Arsenal herbicide Applicators Concentrate** may also be applied using backpack or handheld sprayers to control herbaceous weeds around individual conifer seedlings. Mix 0.4 fl oz to 0.6 fl oz **Arsenal herbicide Applicators Concentrate** and 0.2 oz nonionic surfactant per gallon of water. Direct the spray to the weeds and minimize the amount applied to conifer foliage for best conifer tolerance. Ensure that maximum labeled rates per acre for previously listed crop species are not exceeded.

**Arsenal herbicide Applicators Concentrate** may be tank mixed with sulfometuron to broaden the spectrum of weeds controlled. For loblolly pine, apply 4 fl ozs to 6 fl ozs **Arsenal herbicide Applicators Concentrate** plus 1 oz to 2 ozs sulfometuron per acre. The application of **Arsenal herbicide Applicators Concentrate** plus sulfometuron on other conifer species may cause growth suppression.

## Conifer Release Treatment

**Arsenal herbicide Applicators Concentrate** may be applied as a broadcast or directed spray application for suppression of labeled brush, tree, and herbaceous weed species. Directed spray applications may be made with low-volume applications in conifer stands of all ages by targeting the unwanted vegetation and avoiding direct application to the conifer. Ensure that maximum labeled rates per acre listed for the following crop species are not exceeded.

### Broadcast Applications for release of the following conifers from hardwood competition:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine <sup>2</sup>	<i>Pinus taeda</i>	12 to 20
Loblolly X pitch hybrid <sup>2</sup>		
Virginia pine <sup>2</sup>	<i>Pinus virginiana</i>	
Atlantic white cedar <sup>1</sup>	<i>Chamaecyparis thyoides</i>	12 to 16
Longleaf pine	<i>Pinus palustris</i>	
Pitch pine	<i>Pinus rigida</i>	
Shortleaf pine	<i>Pinus echinata</i>	
Slash pine	<i>Pinus elliottii</i>	8 to 16
White pine <sup>1</sup>	<i>Pinus strobus</i>	
California red fir	<i>Abies magnifica</i>	
California white fir	<i>Abies concolor</i>	8 to 12
Lodgepole pine <sup>2</sup>	<i>Pinus contorta</i>	
Douglas fir <sup>2</sup>	<i>Pseudotsuga menziesii</i>	
Jack pine <sup>2</sup>	<i>Pinus banksiana</i>	6 to 12
Black spruce <sup>2</sup>	<i>Picea mariana</i>	
Red spruce <sup>2</sup>	<i>Picea rubens</i>	
White spruce <sup>2</sup>	<i>Picea glauca</i>	

<sup>1</sup> **DO NOT** make applications to white pine stands younger than three years old. To minimize potential white pine injury, release treatments should not be made prior to July 15.

<sup>2</sup> Applications should be made after formation of final conifer resting buds in the fall or height growth inhibition may occur.

<sup>3</sup> **Mid-rotation release:** For broadcast applications below the pine canopy in established stands of loblolly pine, loblolly X pitch hybrid, and Virginia pine, use 16 fl ozs to 32 fl ozs product per acre. For mid-rotation release of other species, use rates listed in chart above.

<sup>4</sup> Apply **Arsenal herbicide Applicators Concentrate** after July 15 and before hardwood defoliation in the fall. The use of rates below 16 ozs/A are intended for hardwood growth suppression and some hardwood resprouting should be expected.

**For slash pine and longleaf pine, broadcast release treatments over the top of pines for the purpose of woody plant control must be made after August 15 and only in stands 2 through 5 years old. For applications over the top of slash pine and longleaf pine, DO NOT add surfactant and use lower labeled rates on sandy soils.**

Apply the label rate of **Arsenal® herbicide Applicators Concentrate** per acre when making broadcast applications with helicopter or ground spray equipment. Refer to mixing and application instructions for proper spray volumes. A nonionic surfactant may be added at no more than 1/4 percent by volume.

Use the higher label rates of **Arsenal herbicide Applicators Concentrate** when controlling particularly dense stands or difficult-to-control species.

Some minor conifer growth inhibition may be observed when release treatments are made during periods of active conifer growth. To minimize potential conifer height growth inhibition, **DO NOT** make broadcast applications to conifer stands except loblolly pine before the end of the second growing season. To minimize potential conifer height growth inhibition, broadcast release treatments may be made late in the growing season. To prevent possibility of conifer injury, **DO NOT** apply **Arsenal herbicide Applicators Concentrate** when conifers are under stress from drought, disease, animal or winter injury, or other stresses reducing conifer vigor.

**Arsenal herbicide Applicators Concentrate** may be used to release loblolly pine seedlings during the first growing season following planting or for one-year-old natural loblolly pine regeneration. For one-year-old loblolly pine release, apply 12 fl ozs to 20 fl ozs/A of **Arsenal herbicide Applicators Concentrate** after July 15. Rates below 16 fl ozs/A are intended for hardwood growth suppression; some hardwood resprouting should be expected.

### Spot Treatment of Undesirable Hardwood Vegetation

**Arsenal herbicide Applicators Concentrate** may be used as a directed foliar or cut-stem application to control undesirable brush and hardwoods in the management of stands of all ages for the conifer species listed in the broadcast application section above. Refer to mixing and application instructions in the directed foliar or cut-stem sections above for proper use rates, equipment, and application techniques. **DO NOT** exceed maximum labeled rates per acre listed for crop species. Cut-stem applications may be used for spot treatment of undesirable hardwoods in Ponderosa pine stands using 12 fl ozs or less of product per acre.

Avoid direct application to desired plant species or injury may occur. Injury may occur to nontarget or desirable hardwoods or conifers if they extend from the same root system, or their root systems are grafted to those of the treated tree, or their roots extend into the treated zone.

### Late Rotation Vegetation Control in Western Conifer

In California, the Pacific Northwest and Inland Northwest, broadcast aerial applications of **Arsenal herbicide Applicators Concentrate** up to 24 fl ozs/A are permissible in conifer stands that are targeted for harvesting the year following treatment. Use minimum spray volume of 15 gallons per acre. Significant conifer injury or mortality must be expected. **DO NOT** use this treatment if conifer injury or mortality cannot be tolerated.

### Bag and Spray Application for Conifer Release

In Douglas fir and Ponderosa pine stands, broadcast applications of **Arsenal herbicide Applicators Concentrate** up to 16 fl ozs/A are permissible when the trees are covered by bags prior to the application. The bags must prevent the spray mix from contacting the conifer foliage. On sites with coarse textured soils (e.g. decomposed granite, pumice, sandy or rocky sites) or low levels of soil organic matter (generally 5% or less), significant conifer growth inhibition and mortality is possible. **DO NOT** use this treatment on these types of sites if conifer growth inhibition and mortality cannot be tolerated.

## Nonagricultural Land Use

**Arsenal herbicide Applicators Concentrate** may be used for woody and herbaceous weed control in nonagricultural lands including private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditch-banks, barrier strips, etc.); industrial sites - outdoor (including lumberyards, pipeline and tank farms, etc.); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails).

Applications to nonagricultural lands are not applicable to treatment of commercial timber or other plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes.

### Brush Control

Use the specified rate of **Arsenal herbicide Applicators Concentrate** with the preferred application technique for the control of undesirable brush.

#### Tank Mixes and Application Rates for Low-volume Foliar Brush Control\*

Target Vegetation	Arsenal herbicide Applicators Concentrate Rate (by volume)	Tank Mix
Mixed hardwoods without elm, locust, or pine	0.50 to 0.75%	Surfactant
Mixed hardwoods containing elm, locust, and pine	0.25 to 0.50%	<b>Accord®</b> at 2% to 3% by volume plus surfactant
Mixed hardwoods with locust and pine but no elm	0.25 to 0.50%	<b>Krenite®</b> at 2% to 5% by volume plus surfactant
Mixed hardwoods with locust and elm but no pine	0.25 to 0.50%	<b>Escort®</b> at 2 ozs/A or 2.3 grams/gal plus surfactant

\* Tank mixes with 2,4-D or products containing 2,4-D have resulted in reduced **Arsenal herbicide Applicators Concentrate** efficacy.

#### Backpack and Handheld Spray Mixing Guide

% Solution	Product per gallon of mix (fl ozs)	Product per 4-gallon backpack (fl ozs)
0.25%	0.3	1.3
0.5%	0.6	2.6
1.0%	1.3	5.1
2.0%	2.6	10.2
3.0%	3.8	15.4
5.0%	6.4	25.6



### Measuring Chart

128 ounces	=	1 gallon
16 ounces	=	1 pint
8 pints	=	1 gallon
4 quarts	=	1 gallon
2 pints	=	1 quart

## Selective Control of Undesirable Weeds in Unimproved Bermudagrass and Bahiagrass

**Arsenal® herbicide Applicators Concentrate** may be used on unimproved Bermudagrass and Bahiagrass turf such as roadsides, utility rights-of-way, and other nonagricultural lands. The application of **Arsenal herbicide Applicators Concentrate** on established common and coastal Bermudagrass and Bahiagrass provides control of labeled broadleaf and grass weeds. Competition from these weeds is eliminated, releasing the Bermudagrass and Bahiagrass. Treatment of Bermudagrass with **Arsenal herbicide Applicators Concentrate** results in a compacted growth habit and seedhead inhibition.

Uniformly apply with properly calibrated ground equipment using at least 10 gallons of water per acre.

Temporary yellowing of grass may occur when treatment is made after growth commences.

### Restrictions

- **DO NOT** add surfactant in excess of the specified rate (1 fl oz per 25 gallons of spray solution).
- **DO NOT** apply to grass during its first growing season.
- **DO NOT** apply to grass that is under stress from drought, disease, insects, or other causes.

### Dosage Rate and Timing

**Bermudagrass.** Apply **Arsenal herbicide Applicators Concentrate** at 3 fl ozs to 6 fl ozs per acre when the Bermudagrass is dormant. Apply **Arsenal herbicide Applicators Concentrate** at 3 fl ozs to 4 fl ozs per acre after the Bermudagrass has reached full greenup. Applications made during greenup will delay greenup. Include a surfactant in the spray solution. For additional preemergence control of annual grass and small-seeded broadleaf weeds, add **Pendulum® AquaCap™ herbicide** at the rate of 3.1 to 6.3 pints per acre. Consult the **Pendulum AquaCap** label for weeds controlled and for other use directions and precautions.

For control of Johnsongrass in Bermudagrass turf, apply **Arsenal herbicide Applicators Concentrate** at 4 fl ozs per acre, plus **Roundup® herbicide** at 12 ozs per acre, plus surfactant. For additional control of broadleaves and vines, **Garlon® 3A herbicide** may be added to the above mix at the rate of 1 to 2 pints per acre. Observe all precautions and restrictions on the **Garlon 3A** and **Roundup** labels.

**Bahiagrass.** Apply **Arsenal herbicide Applicators Concentrate** at 2 fl ozs to 4 fl ozs per acre when the Bahiagrass is dormant or after the grass has initiated greenup but has not exceeded 25% greenup. Include a surfactant in the spray solution (see **Adjuvants** section for specific use directions for surfactants).

### Weeds Controlled in Unimproved Bermudagrass and Bahiagrass

Common Name	Scientific Name
Bedstraw*	<i>Galium</i> spp.
Bishopweed*	<i>Ptilimnium capillaceum</i>
Buttercup*	<i>Ranunculus parviflorus</i>
Carolina geranium	<i>Geranium carolinianum</i>
Fescue	<i>Festuca</i> spp.
Foxtail	<i>Setaria</i> spp.
Little barley	<i>Hordeum pusillum</i>
Seedling Johnsongrass	<i>Sorghum halepense</i>
White clover	<i>Trifolium repens</i>
Wild carrot	<i>Daucus carota</i>
Yellow woodsorrel	<i>Oxalis stricta</i>

\* Use not permitted in California unless otherwise directed by supplemental labeling.

### Grass Growth and Seedhead Suppression

**Arsenal herbicide Applicators Concentrate** may be used to suppress growth and seedhead development of certain turfgrass in unimproved areas. When **Arsenal herbicide Applicators Concentrate** is applied to desirable turf, it may result in temporary turf damage and/or discoloration. Effects to the desirable turf may vary with environmental conditions. For optimum performance, application should be made prior to culm elongation. Applications may be made before or after mowing. If applied prior to mowing, allow at least 3 days of active growth before mowing. If applied following a mowing, allow sufficient time for the grasses to recover before applying this product or injury may be amplified.

**DO NOT APPLY** to turf under stress (drought, cold, insect damage, etc.) or severe injury or death may occur.

**Bermudagrass.** Apply **Arsenal herbicide Applicators Concentrate** at 3 fl ozs to 4 fl ozs per acre from early greenup to prior to seedhead initiation. **DO NOT** add a surfactant for this application.

**Cool-season Unimproved Turf.** Apply **Arsenal herbicide Applicators Concentrate** at 1 fl oz per acre plus 0.25% nonionic surfactant. For increased suppression, **Arsenal herbicide Applicators Concentrate** may be tank mixed with such products as **Campaign® herbicide** (24 ozs per acre) or **Embank® growth regulator** (8 ozs per acre). Tank mixes may increase injury to desired turf. Consult each product label for labeled turf species and other use directions and precautions. Tank mixes with 2,4-D or products containing 2,4-D may decrease the effectiveness of **Arsenal herbicide Applicators Concentrate**.

### Total Vegetation Control where Bare Ground is Desired

**Arsenal herbicide Applicators Concentrate** is an effective herbicide for preemergence or postemergence control of many annual and perennial broadleaf and grass weeds where bare ground is desired. **Arsenal herbicide Applicators Concentrate** is particularly effective on hard-to-control perennial grasses. **Arsenal herbicide Applicators Concentrate** at 0.75 to 3 pints per acre can be used alone or in tank mix with herbicides approved for use in bare ground. The degree and duration of control are dependent on the rate of **Arsenal herbicide Applicators Concentrate** used, tank mix partner, the volume of carrier, soil texture, rainfall, and other conditions.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label restrictions and precautions for all products used when making an application involving tank mixes.

Applications of **Arsenal® herbicide Applicators Concentrate** may be made any time of the year. Use equipment calibrated to deliver desired gallons per acre spray volume and uniformly distribute the spray pattern over the treated area.

**Postemergence Application.** Always use a spray adjuvant (see **Adjuvants** section of this label) when making a postemergence application. For optimum performance on tough-to-control annual grass weeds, apply at a total volume of 100 gallons per acre or less. For quicker burndown or brownout of target weeds, **Arsenal herbicide Applicators Concentrate** may be tank mixed with **Roundup® herbicide**. Tank mixes with 2,4-D or products containing 2,4-D may reduce the performance of **Arsenal herbicide Applicators Concentrate**. Always follow the more restrictive label restrictions and precautions for all products used when tank mixing.

**Spot Treatment. Arsenal herbicide Applicators Concentrate** may be used as a follow-up treatment to control escapes or weed encroachment in a bareground situation. To prepare the spray solution, thoroughly mix in each gallon of water 0.25% to 2.5% **Arsenal herbicide Applicators Concentrate** plus an adjuvant. For increased burndown, include **Roundup** as a tank mixture. For added residual weed control or to increase the weed spectrum, add **Pendulum® AquaCap™ herbicide**, **Overdrive® herbicide**, or diuron. Always follow the more restrictive label restrictions and precautions for all products used when tank mixing.

## Control of Undesirable Weeds under Paved Surfaces

**Arsenal herbicide Applicators Concentrate** can be used under asphalt, pond liners and other paved areas, **ONLY** in industrial sites or where the pavement has a suitable barrier along the perimeter that prevents encroachment of roots of desirable plants.

Use **Arsenal herbicide Applicators Concentrate** only where the area to be treated has been prepared according to good construction practices. If rhizomes, stolons, tubers or other vegetative plant parts are present in the site, remove them by scalping with a grader blade to a depth sufficient to ensure their complete removal.

Follow **Arsenal herbicide Applicators Concentrate** applications with paving as soon as possible. **DO NOT** apply where the chemical may contact the roots of desirable trees or other plants.

This product is not to be used under pavement on residential properties, such as driveways or parking lots, or for use in recreational areas, such as under bike or jogging paths, golf cart paths, or tennis courts, or where landscape plantings could be anticipated.

Injury or death of desirable plants may result if this product is applied where roots are present or where roots may extend into the treated area. Roots of trees and shrubs may extend a considerable distance beyond the branch extremities (drip line).

Apply to the soil surface only when final grade is established. **DO NOT** move soil following **Arsenal herbicide Applicators Concentrate** application.

Apply **Arsenal herbicide Applicators Concentrate** in sufficient water (at least 100 gals per acre) to ensure thorough and uniform wetting of the soil surface, including the shoulder areas. Add **Arsenal herbicide Applicators Concentrate** at a rate of 3 pints per acre (1.1 fluid ounces per 1000 square feet) to clean water in the spray tank during the filling operation. Agitate before spraying.

If the soil is not moist prior to treatment, incorporation of **Arsenal herbicide Applicators Concentrate** is needed for herbicide activation. Incorporate **Arsenal herbicide Applicators Concentrate** into the soil to a depth of 4 to 6 inches using a rototiller or disc. Rainfall or irrigation of 1 inch will also provide uniform incorporation. **DO NOT** allow treated soil to wash or move into untreated areas.

## Spot Treatment and Crack-and-crevice Treatment

Use **Arsenal herbicide Applicators Concentrate** as an initial or follow-up treatment to control weed escapes or weed encroachment in a bare-ground situation, including cracks and crevices in paved surfaces such as roadways, runways, and parking areas.

## Grass Pasture and Rangeland Spot Treatment Weed Control

For the control of undesirable vegetation in grass pasture and rangeland, **Arsenal herbicide Applicators Concentrate** may be applied as a spot treatment at a rate of 1 to 24 fluid ounces of product per treated acre using any of the described ground application methods. Spot applications to grass pasture and rangeland may not exceed more than 1/10 of the area to be grazed or cut for hay. See appropriate sections of this label for specific use directions for the application method and vegetation control desired. **DO NOT** apply more than 24 fluid ounces per acre per year.

## Grazing and Haying Restrictions

- There are no grazing restrictions following **Arsenal herbicide Applicators Concentrate** application.
- **DO NOT** cut forage grass for hay for 7 days after **Arsenal herbicide Applicators Concentrate** application.

## Rangeland Use Instructions

**Arsenal herbicide Applicators Concentrate** may be applied to rangeland for the control of undesirable vegetation to achieve one or more of the following vegetation management objectives:

- Control of undesirable (nonnative, invasive and noxious) plant species
- Control of undesirable vegetation to aid in the establishment of desirable rangeland plant species
- Control of undesirable vegetation to aid in the establishment of desirable rangeland vegetation following a fire
- Control of undesirable vegetation to reduce wildfire fuel
- Release of existing desirable rangeland plant communities from the competitive pressure of undesirable plant species
- Control of undesirable vegetation for wildlife habitat improvement

To ensure the protection of threatened and endangered plants when applying **Arsenal herbicide Applicators Concentrate** to rangeland:

- Federal agencies must follow NEPA regulations to ensure protection of threatened and endangered plants.
- State agencies must work with the Fish and Wildlife Service or the Service's designated state conservation agency to ensure protection of threatened and endangered plants.
- Other organizations or individuals must operate under a habitat conservation plan if threatened or endangered plants are known to be present on the land to be treated.

See the appropriate section(s) of this label for specific use directions for the desired rangeland vegetation management objective.

**Arsenal herbicide Applicators Concentrate** must only be applied to a given rangeland acre as specific weed problems arise. Long-term control of undesirable weed species ultimately depends on the successful use of land management practices that promote the growth and sustainability of desirable rangeland plant species.

## Rotational Crop Instructions

Rotational crops may be planted 12 months after applying **Arsenal® herbicide Applicators Concentrate** at the specified pasture and rangeland rate. Following 12 months after an **Arsenal herbicide Applicators Concentrate** application and before planting any crop, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted in the previously treated area in the grass pasture/rangeland and grown to maturity. The test strip should include low areas and knolls and include variations in soil type and pH within the treated area. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year.

Use of **Arsenal herbicide Applicators Concentrate** in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

## Aquatic Weed Control

**Arsenal herbicide Applicators Concentrate** may be applied for the control of floating and emergent undesirable vegetation (see the **Aquatic Weeds Controlled** and the **Terrestrial Weeds Controlled** section) in or near bodies of water that may be flowing, nonflowing, or transient. **Arsenal herbicide Applicators Concentrate** may be applied to aquatic sites that include lakes, rivers, streams, ponds, seeps, drainage ditches, canals, reservoirs, swamps, bogs, marshes, estuaries, bays, brackish water, transitional areas between terrestrial and aquatic sites, riparian sites, and seasonal wet areas. See **Product Use Precautions and Restrictions** section of this label for precautions, restrictions, and instructions on aquatic uses.

Read and observe the following directions if aquatic sites are present in nonagricultural lands and are part of the intended treatment area.

**Arsenal herbicide Applicators Concentrate** must be applied to the emergent foliage of the target vegetation and has little-to-no activity on submerged aquatic vegetation. **Arsenal herbicide Applicators Concentrate** concentrations resulting from direct application to water are not expected to be of sufficient concentration nor duration to provide control of target vegetation. Application should be made in such a way as to maximize spray interception by the target vegetation while minimizing the amount of overspray that enters the water.

**Arsenal herbicide Applicators Concentrate** does not control plants that are completely submerged or have a majority of their foliage under water.

**Arsenal herbicide Applicators Concentrate** may be applied with surface or helicopter application equipment in a minimum of 2 gallons of water per acre. When applying by helicopter, follow directions under the **Aerial Application** section of this label; otherwise, refer to the **Ground Application** section when using surface equipment.

Applications to moving bodies of water should be made while traveling upstream to prevent concentration of this herbicide in water. **DO NOT** apply to bodies of water or portions of bodies of water where emergent and/or floating weeds do not exist.

When application is to be made to target vegetation that covers a large percentage of the surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in the suffocation of some sensitive aquatic organisms. If oxygen depletion is a concern, treat no more than 1/2 of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas.

Avoid washoff of sprayed foliage by spray boat or recreational boat backwash for 1 hour after application.

Apply **Arsenal herbicide Applicators Concentrate** at 1 to 3 pints per acre depending on species present and weed density. **DO NOT** exceed the maximum label rate of 3 pints per acre (1.5 lbs ae/A) per year. Use the higher labeled rates for heavy weed pressure. Consult the **Aquatic Weeds Controlled** section and the **Terrestrial Weeds Controlled** section of this label for specific rates.

**Arsenal herbicide Applicators Concentrate** may be applied as a draw-down treatment in areas described above. Apply **Arsenal herbicide Applicators Concentrate** to weeds after water has been drained and allow 14 days before reintroduction of water.

**Permitting** - Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

**Private waters** - Applications may be made to private waters that are still, such as ponds, lakes, and drainage ditches where there is minimal or no outflow to public waters.

In New York state, a permit is required for application to private water bodies.

## Weeds Controlled

### Aquatic Weeds Controlled

**Arsenal herbicide Applicators Concentrate** will control the following target species as specified in the **Use Rates and Application Directions** column of the table. Rates are expressed in terms of product volume for broadcast applications and as a % solution for directed applications including spot treatments. **For % solution applications, DO NOT apply more than the equivalent of 3 pints of Arsenal herbicide Applicators Concentrate per acre.**

Common Name	Scientific Name	Use Rates and Application Directions
<b>Floating</b>		
*Floating heart	<i>Nymphodes</i> spp.	1 to 2 pints/A (0.25 to 0.50% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Frogbit	<i>Limnobium spongia</i>	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Spatterdock	<i>Nuphar luteum</i>	Apply a tank mix of 1 to 2 pints/A <b>Arsenal herbicide Applicators Concentrate</b> + 4 to 6 pints/A glyphosate (0.25% <b>Arsenal herbicide Applicators Concentrate</b> + 1.5% glyphosate) in 100 GPA water for best control. Ensure 100% coverage of actively growing emergent foliage.
*Water hyacinth	<i>Eichhornia crassipes</i>	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water to actively growing foliage.
*Water lettuce	<i>Pistia stratiotes</i>	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.

\* Use not permitted in California unless otherwise directed by supplemental labeling.

(continued)

## Aquatic Weeds Controlled *(continued)*

Common Name	Scientific Name	Use Rates and Application Directions
<b>Emerged</b>		
*Alligatorweed	<i>Alternanthera philoxeroides</i>	0.5 to 2.0 pints/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Arrowhead, duck-potato	<i>Sagittaria</i> spp.	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Bacopa, lemon	<i>Bacopa</i> spp.	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Parrot feather	<i>Myriophyllum aquaticum</i>	Must be foliage above water for sufficient <b>Arsenal® herbicide Applicators Concentrate</b> uptake. Apply 1 to 2 pints/A to actively growing emergent foliage.
*Pennywort	<i>Hydrocotyle</i> spp.	0.5 to 1.0 pint/A (0.25% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Pickerelweed	<i>Pontederia cordata</i>	1.0 to 1.5 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Taro, wild Dasheen Elephant's ear Coco yam	<i>Colocasia esculentum</i>	2 to 3 pints/A (0.75% solution) applied in 100 GPA with a high quality sticker adjuvant. Ensure good coverage of actively growing emergent foliage.
*Water chestnut	<i>Trapa natans</i>	2 to 3 pints/A (0.75% solution) applied in 100 GPA with a high quality sticker adjuvant. Ensure good coverage of actively growing emergent foliage.
*Water lily	<i>Nymphaea odorata</i>	1.0 to 1.5 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Water primrose	<i>Ludwigia uruguayensis</i>	2 to 3 pints/A (0.75% solution). Ensure 100% coverage of actively growing emergent foliage.
<b>Terrestrial/Marginal</b>		
*Soda apple, Aquatic nightshade	<i>Solanum tampicense</i>	1 pint/A applied to foliage
*Bamboo, Japanese	<i>Phyllostachys</i> spp.	1.5 to 2.0 pints/A applied to the foliage when plant is actively growing; before setting seedhead. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Beach, vitex	<i>Vitex rotundifolia</i>	2.5% solution + 1% MSO foliar spray. 8.5% solution stem injection (hack and squirt)
Brazilian pepper Christmasberry	<i>Schinus terebinthifolius</i>	1 to 2 pints/A applied to foliage
Cattail	<i>Typha</i> spp.	1 to 2 pints/A (0.5% solution) applied to actively growing green foliage after full leaf elongation. Lower rates will control cattail in the North; higher rates are needed in the South.
Chinese tallow tree	<i>Sapium sebiferum</i>	8 to 12 fl ozs/A applied to foliage
Cogongrass	<i>Imperata cylindrica</i>	Burn foliage, till area; then fall-spray 1 quart/A <b>Arsenal herbicide Applicators Concentrate</b> + MSO applied to new growth.
Cordgrass, prairie	<i>Spartina</i> spp.	2 to 3 pints/A applied to actively growing foliage
*Cutgrass	<i>Zizaniopsis miliacea</i>	2 to 3 pints/A applied to actively growing foliage
*Elephant grass Napier grass	<i>Pennisetum purpureum</i>	1.5 pints/A applied to actively growing foliage
*Flowering rush	<i>Butomus umbellatus</i> L.	1.0 to 1.5 pints/A applied to actively growing foliage
Giant reed Wild cane	<i>Arundo donax</i>	2 to 3 pints/A applied in spring to actively growing foliage

\*Use not permitted in California unless otherwise directed by supplemental labeling.

*(continued)*

## Aquatic Weeds Controlled *(continued)*

Common Name	Scientific Name	Use Rates and Application Directions
<b>Terrestrial/Marginal <i>(continued)</i></b>		
*Golden bamboo	<i>Phyllostachys aurea</i>	1.5 to 2.0 pints/A applied to foliage when plant is actively growing; before setting seedhead. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Junglerice	<i>Echinochloa colonum</i>	1.5 to 2.0 pints/A applied to actively growing foliage
Knapweed	<i>Centaurea</i> spp.	Russian knapweed: 1.0 to 1.5 pints + 1 quart/A MSO fall-applied after senescence begins
Knotweed, Japanese	<i>Polygonum cuspidatum</i> <i>Fallopia japonica</i>	1.5 to 2.0 pints/A applied postemergence to actively growing foliage
Melaleuca Paperbark tree	<i>Melaleuca quinquenervia</i>	<b>For established stands</b> , apply 3 pints/A <b>Arsenal® herbicide Applicators Concentrate</b> + 6 pints/A glyphosate + spray adjuvant. For best results, use 4 quarts/A methylated seed oil as an adjuvant. <b>For ground foliar application</b> , uniformly apply to ensure 100% coverage. <b>For broadcast foliar control</b> , apply aerially in a minimum of 2 passes at 10 gallons/A applied cross treatment. <b>For spot treatment</b> , use a 12.5% <b>Arsenal herbicide Applicators Concentrate</b> + 25% solution of glyphosate + 1.25% MSO in water applied as a fill or stump treatment.
*Nutmuss Kili'p'opu	<i>Cyperus rotundus</i>	1 pint <b>Arsenal herbicide Applicators Concentrate</b> + 1 quart/A MSO applied early postemergence
*Nutsedge	<i>Cyperus</i> spp.	1.0 to 1.5 pints postemergence to foliage or preemergence incorporated, nonincorporated, preemergence applications will not control.
Phragmites Common reed	<i>Phragmites australis</i>	2 to 3 pints/A applied to actively growing green foliage after full leaf elongation. Ensure 100% coverage. If stand has a substantial amount of old stem tissue, mow or burn, allow to regrow to approximately 5 feet tall before treatment. Lower rates will control phragmites in the North; higher rates are needed in the South.
*Poison hemlock	<i>Conium maculatum</i>	1 pint <b>Arsenal herbicide Applicators Concentrate</b> + 1 quart/A MSO applied preemergence to early postemergence to rosette prior to flowering
Purple loosestrife	<i>Lythrum salicaria</i>	0.5 pint/A applied to actively growing foliage
Reed canarygrass	<i>Phalaris arundinacea</i>	1.5 to 2.0 pints/A applied to actively growing foliage
Rose, swamp	<i>Rosa palustris</i>	1.0 to 1.5 pints/A applied to actively growing foliage
Russian olive	<i>Elaeagnus angustifolia</i>	1 to 2 pints/A or a 0.5% solution applied to foliage
Saltcedar Tamarisk	<i>Tamarix</i> spp.	Aerial apply 1 quart <b>Arsenal herbicide Applicators Concentrate</b> + 0.25% v/v NIS to actively growing foliage during flowering. For spot spraying, use 0.5% solution of <b>Arsenal herbicide Applicators Concentrate</b> + 0.25% v/v NIS and spray to wet foliage. After application, wait at least 2 years before disturbing treated saltcedar. Earlier disturbance can reduce overall control.
Smartweed	<i>Polygonum</i> spp.	1 pint/A applied early postemergence
Sumac	<i>Rhus</i> spp.	1.0 to 1.5 pints/A applied to foliage
Swamp morningglory Water spinach Kangkong	<i>Ipomoea aquatica</i>	0.5 to 1.0 pint/A <b>Arsenal herbicide Applicators Concentrate</b> + 1 quart/A MSO applied early postemergence
Torpedo grass	<i>Panicum repens</i>	2 pints/A (0.50 to 0.75% solution); ensure good coverage to actively growing foliage
*White top Hoary cress	<i>Cardaria draba</i>	0.5 to 1.0 pint/A applied in spring to foliage during flowering
Willow	<i>Salix</i> spp.	1.0 to 1.5 pints/A <b>Arsenal herbicide Applicators Concentrate</b> applied to actively growing foliage. Ensure good coverage

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## Terrestrial Weed Control

In terrestrial sites, **Arsenal® herbicide Applicators Concentrate** will provide preemergence or postemergence control with residual control of the following target vegetation species at the rates listed. Residual control refers to control of newly germinating seedlings in both annuals and perennials. In general, annual weeds may be controlled by preemergence or postemergence applications of **Arsenal herbicide Applicators Concentrate**. For established biennials and perennials, postemergence applications of **Arsenal herbicide Applicators Concentrate** will provide the best control.

The rates shown below pertain to broadcast applications and indicate the relative sensitivity of these weeds. The relative sensitivity should be referenced when preparing low-volume spray solutions (see **Low-volume Foliar Application** section of **Ground Application**); low-volume applications may provide control of the target species with less **Arsenal herbicide Applicators Concentrate** per acre than is shown for the broadcast treatments. Use **Arsenal herbicide Applicators Concentrate** only in accordance with the specific use directions on this label and the leaflet label.

The relative sensitivity of the species listed following can also be used to determine the relative risk of causing nontarget plant injury if any of the species listed following are considered to be desirable within the area to be treated.

**Resistant Biotypes.** Naturally occurring biotypes (a plant within a given species that has a slightly different but distinct genetic makeup from other plants of the same species) of some weeds listed on this label may not be effectively controlled. If naturally occurring, resistant biotypes are present in an area, **Arsenal herbicide Applicators Concentrate** should be tank mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

### Grass Weeds

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.0 to 1.5 pts/A<sup>1</sup></b>		
Annual bluegrass	<i>Poa annua</i>	A
Broadleaf signalgrass	<i>Brachiaria platyphylla</i>	A
Canada bluegrass	<i>Poa compressa</i>	P
Downy brome	<i>Bromus tectorum</i>	A
Fescue	<i>Festuca</i> spp.	A/P
Foxtail	<i>Setaria</i> spp.	A
Italian ryegrass	<i>Lolium multiflorum</i>	A
Johnsongrass <sup>4</sup>	<i>Sorghum halepense</i>	P
Kentucky bluegrass	<i>Poa pratensis</i>	P
Napier grass <sup>5</sup>	<i>Pennisetum purpureum</i>	P
Orchardgrass	<i>Dactylis glomerata</i>	P
Paragrass	<i>Brachiaria mutica</i>	P
Quackgrass	<i>Agropyron repens</i>	P
Sandbur	<i>Cenchrus</i> spp.	A
Smooth brome	<i>Bromus inermis</i>	P
Vaseygrass	<i>Paspalum urvillei</i>	P
Wild oats	<i>Avena fatua</i>	A
Witchgrass	<i>Panicum capillare</i>	A

(continued)

## Grass Weeds (continued)

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.5 to 2.0 pts/A<sup>1</sup></b>		
Barnyardgrass	<i>Echinochloa crus-galli</i>	A
Beardgrass	<i>Andropogon</i> spp.	P
Bluegrass, annual	<i>Poa annua</i>	A
Bulrush <sup>3</sup>	<i>Scirpus validus</i>	P
Cogongrass	<i>Imperata cylindrica</i>	P
Cheat	<i>Bromus secalinus</i>	A
Crabgrass	<i>Digitaria</i> spp.	A
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	A
Fall panicum	<i>Panicum dichotomiflorum</i>	A
Goosegrass	<i>Eleusine indica</i>	A
Itchgrass	<i>Rottboellia exaltata</i>	A
Lovegrass <sup>4</sup>	<i>Eragrostis</i> spp.	P
Maidencane <sup>5</sup>	<i>Panicum hemitomon</i>	A
Panicum, browntop	<i>Panicum fasciculatum</i>	A
Panicum, Texas	<i>Panicum texanum</i>	A
Prairie threeawn	<i>Aristida oligantha</i>	P
Sandbur, field	<i>Cenchrus incertus</i>	A
Signalgrass	<i>Brachiaria platyphylla</i>	A
Wild barley	<i>Hordeum</i> spp.	A
Woolly cupgrass	<i>Eriochloa villosa</i>	A

### Apply 2 to 3 pts/A<sup>1</sup>

Bahiagrass	<i>Paspalum notatum</i>	P
Bermudagrass <sup>3, 4</sup>	<i>Cynodon dactylon</i>	P
Big bluestem	<i>Andropogon gerardii</i>	P
Dallisgrass	<i>Paspalum dilatatum</i>	P
Feathertop	<i>Pennisetum villosum</i>	P
Guineagrass	<i>Panicum maximum</i>	P
Saltgrass <sup>3</sup>	<i>Distichis stricta</i>	P
Sand dropseed	<i>Sporobolus cryptandrus</i>	P
Sprangletop	<i>Leptochloa</i> spp.	A
Timothy	<i>Phleum pratense</i>	P
Wirestem muhly	<i>Muhlenbergia frondosa</i>	P

<sup>1</sup> Use higher rates where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use a minimum of 75 GPA.

<sup>4</sup> Use higher labeled rates.

<sup>5</sup> Use not permitted in California unless otherwise directed by supplemental labeling.

## Broadleaf Weeds

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.0 to 1.5 pts/A<sup>1</sup></b>		
Burdock	<i>Arctium</i> spp.	B
Carolina geranium	<i>Geranium carolinianum</i>	A
Carpetweed	<i>Mollugo verticillata</i>	A
Clover	<i>Trifolium</i> spp.	A/P
Common chickweed	<i>Stellaria media</i>	A
Common ragweed	<i>Ambrosia artemisiifolia</i>	A
Dandelion	<i>Taraxacum officinale</i>	P
Dogfennel	<i>Eupatorium capillifolium</i>	A
Filaree	<i>Erodium</i> spp.	A
Fleabane	<i>Erigeron</i> spp.	A
Hoary vervain	<i>Verbena stricta</i>	P
Indian mustard	<i>Brassica juncea</i>	A
Kochia	<i>Kochia scoparia</i>	A
Lambsquarters	<i>Chenopodium album</i>	A
Lespedeza <sup>3</sup>	<i>Lespedeza</i> spp.	P
Miner's lettuce	<i>Montia perfoliata</i>	A
Mullein	<i>Verbascum</i> spp.	B
Nettleleaf goosefoot	<i>Chenopodium murale</i>	A
Oxeye daisy	<i>Chrysanthemum leucanthemum</i>	P
Pepperweed	<i>Lepidium</i> spp.	A
Pigweed	<i>Amaranthus</i> spp.	A
Puncturevine	<i>Tribulus terrestris</i>	A
Russian thistle	<i>Salsola kali</i>	A
Smartweed	<i>Polygonum</i> spp.	A/P
Sorrell	<i>Rumex</i> spp.	P
Sunflower	<i>Helianthus</i> spp.	A
Sweet clover	<i>Melilotus</i> spp.	A/B
Tansymustard	<i>Descurainia pinnata</i>	A
Western ragweed	<i>Ambrosia psilostachya</i>	P
Wild carrot	<i>Daucus carota</i>	B
Wild lettuce	<i>Lactuca</i> spp.	A/B
Wild parsnip	<i>Pastinaca sativa</i>	B
Wild turnip	<i>Brassica campestris</i>	B
Woollyleaf bursage	<i>Franseria tomentosa</i>	P
Yellow woodsorrel	<i>Oxalis stricta</i>	P

### Apply 1.5 to 2.0 pts/A<sup>1</sup>

Broom snakeweed <sup>4</sup>	<i>Gutierrezia sarothrae</i>	P
Bull thistle	<i>Cirsium vulgare</i>	B
Burclover	<i>Medicago</i> spp.	A
Chickweed, mouseear	<i>Cerastium vulgatum</i>	A
Clover, hop	<i>Trifolium procumbens</i>	A

(continued)

## Broadleaf Weeds (continued)

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1.5 to 2.0 pts/A<sup>1</sup> (continued)</b>		
Cocklebur	<i>Xanthium strumarium</i>	A
Cudweed	<i>Gnaphalium</i> spp.	A
Desert camelthorn	<i>Alhagi pseudalhagi</i>	P
Dock	<i>Rumex</i> spp.	P
Fiddleneck	<i>Amsinckia intermedia</i>	A
Goldenrod	<i>Solidago</i> spp.	P
Henbit	<i>Lamium amplexicaule</i>	A
Knotweed, prostrate	<i>Polygonum aviculare</i>	A/P
Pokeweed	<i>Phytolacca americana</i>	P
Purslane	<i>Portulaca</i> spp.	A
Rusley, Florida	<i>Richardia scabra</i>	A
Rocket, London	<i>Sisymbrium irio</i>	A
Rush skeletonweed <sup>4</sup>	<i>Chondrilla juncea</i>	B
Saltbush	<i>Atriplex</i> spp.	A
Shepherdspurse	<i>Capsella bursa-pastoris</i>	A
Spurge, annual	<i>Euphorbia</i> spp.	A
Stinging nettle <sup>4</sup>	<i>Urtica dioica</i>	P
Velvetleaf	<i>Abutilon theophrasti</i>	A
Yellow starthistle	<i>Centaurea solstitialis</i>	A

### Apply 2 to 3 pts/A<sup>1</sup>

Arrowwood	<i>Pluchea sericea</i>	A
Canada thistle	<i>Cirsium arvense</i>	P
Giant ragweed	<i>Ambrosia trifida</i>	A
Gray rabbitbrush	<i>Chrysothamnus nauseosus</i>	P
Little mallow	<i>Malva parviflora</i>	B
Milkweed	<i>Asclepias</i> spp.	P
Primrose	<i>Oenothera kunthiana</i>	A
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	P
Sowthistle	<i>Sonchus</i> spp.	A
Texas thistle	<i>Cirsium texanum</i>	P

<sup>1</sup> Use higher rates where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use not permitted in California unless otherwise directed by supplemental labeling.

<sup>4</sup> For best results, early postemergence applications are required.

## Vines and Brambles

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 0.5 pt/A</b>		
Field bindweed	<i>Convolvulus arvensis</i>	P
Hedge bindweed	<i>Calystegia sepium</i>	A
<b>Apply 1.0 to 1.5 pts/A<sup>1</sup></b>		
Wild buckwheat	<i>Polygonum convolvulus</i>	P
<b>Apply 1.5 to 2.0 pts/A<sup>1</sup></b>		
Greenbriar	<i>Smilax</i> spp.	P
Honeysuckle <sup>3</sup>	<i>Lonicera</i> spp.	P
Morningglory	<i>Ipomoea</i> spp.	A/P
Poison ivy	<i>Rhus radicans</i>	P
Redvine	<i>Brunnichia cirrhusa</i>	P
Wild rose <sup>3</sup>	<i>Rosa</i> spp.	P
including:		
Multiflora rose	<i>Rosa multiflora</i>	P
Macartney rose	<i>Rosa bracteata</i>	P
<b>Apply 2 to 3 pts/A<sup>1</sup></b>		
Trumpet creeper	<i>Campsis radicans</i>	P
Virginia creeper	<i>Parthenocissus quinquefolia</i>	P
Wild grape	<i>Vitis</i> spp.	P

<sup>1</sup> Use higher rate where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use higher labeled rates.

## Brush Species

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 1 to 2 pts/A<sup>1</sup></b>		
Brazilian peppertree	<i>Schinus terebinthifolius</i>	P
Chinese tallow tree	<i>Sapium sebiferum</i>	P
Popcorn tree		
Russian olive	<i>Elaeagnus angustifolia</i>	P
Sumac	<i>Rhus</i> spp.	P
Willow	<i>Salix</i> spp.	P
<b>Apply 2 to 3 pts/A<sup>1</sup></b>		
Alder	<i>Alnus</i> spp.	P
American beech	<i>Fagus grandifolia</i>	P
Ash <sup>3</sup>	<i>Fraxinus</i> spp.	P
Aspen	<i>Populus</i> spp.	P
Autumn olive	<i>Elaeagnus umbellata</i>	P
Bald cypress	<i>Taxodium distichum</i>	P
Bigleaf maple	<i>Acer macrophyllum</i>	P
Birch <sup>3</sup>	<i>Betula</i> spp.	P
Black gum <sup>4</sup>	<i>Nyssa sylvatica</i>	P
Black locust <sup>4</sup>	<i>Robinia pseudoacacia</i>	P
Black oak	<i>Quercus kelloggii</i>	P

(continued)

## Brush Species (continued)

Common Name	Scientific Name	Growth Habit <sup>2</sup>
<b>Apply 2 to 3 pts/A<sup>1</sup> (continued)</b>		
Boxelder	<i>Acer negundo</i>	P
Ceanothis	<i>Ceanothis</i> spp.	P
Cherry <sup>3,4</sup>	<i>Prunus</i> spp.	P
Chinaberry	<i>Melia azedarach</i>	P
Chinquapin	<i>Castanopsis chrysophylla</i>	P
Cottonwood	<i>Populus trichocarpa</i> <i>P. deltoides</i>	P
Cypress	<i>Taxodium</i> spp.	P
Dogwood <sup>2</sup>	<i>Cornus</i> spp.	P
Elm <sup>4</sup>	<i>Ulmus</i> spp.	P
Eucalyptus	<i>Eucalyptus</i> spp.	P
Hawthorn	<i>Crataegus</i> spp.	P
Hickory <sup>3</sup>	<i>Carya</i> spp.	P
Honeylocust <sup>4</sup>	<i>Gleditsia triacanthos</i>	P
Huckleberry	<i>Gaylussacia</i> spp.	P
Lyonia spp. including:		
Fetterbush	<i>Lyonia lucida</i>	
Staggerbush	<i>Lyonia mariana</i>	P
Madrone	<i>Arbutus menziesii</i>	P
Maple	<i>Acer</i> spp.	P
Melaleuca	<i>Melaleuca quinquenervia</i>	P
Mulberry <sup>2,7</sup>	<i>Morus</i> spp.	P
Oak <sup>4</sup>	<i>Quercus</i> spp.	P
Persimmon <sup>4</sup>	<i>Diospyros virginiana</i>	P
Pine <sup>5,10</sup>	<i>Pinus</i> spp.	P
Poison oak	<i>Rhus diversiloba</i>	P
Poplar	<i>Populus</i> spp.	P
Privet	<i>Ligustrum vulgare</i>	P
Red alder	<i>Alnus rubra</i>	P
Red maple	<i>Acer rubrum</i>	P
Saltcedar	<i>Tamarix pentandra</i>	P
Sassafras	<i>Sassafras albidum</i>	P
Sourwood <sup>4</sup>	<i>Oxydendrum arboreum</i>	P
Sweetgum	<i>Liquidambar styraciflua</i>	P
Sycamore	<i>Platanus occidentalis</i>	P
Tanoak <sup>2</sup>	<i>Lithocarpus densiflorus</i>	P
Tit <sup>9</sup>	<i>Cyrilla racemiflora</i>	P
Tree of heaven	<i>Ailanthus altissima</i>	P
Vaccinium spp. including:		
Blueberry	<i>Vaccinium</i> spp.	
Sparkleberry	<i>Vaccinium arboreum</i>	P
Water willow <sup>10</sup>	<i>Justicia americana</i>	P
Yellow poplar <sup>3</sup>	<i>Liriodendron tulipifera</i>	P

(continued)



## Brush Species *(continued)*

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<sup>1</sup> Use the higher rates where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit: A = Annual, B = Biennial, P = Perennial

<sup>3</sup> Use higher labeled rates.

<sup>4</sup> Best control with applications prior to formation of fall leaf color

<sup>5</sup> Tank mix with glyphosate or triclopyr

<sup>6</sup> Tank mix with glyphosate

<sup>7</sup> Degree of control may be species dependent.

<sup>8</sup> For water oak (*Quercus nigra*), laurel oak (*Q. lauriflora*), willow oak (*Q. phellos*) and live oak (*Q. virginiana*), use higher labeled rates.

<sup>9</sup> Suppression only

<sup>10</sup> **Use not permitted in California unless otherwise directed by supplemental labeling.**

## Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S EXCLUSIVE REMEDY AND BASF'S EXCLUSIVE LIABILITY, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE OF THE PRODUCT.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.**

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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000241-00299.20170810.NVA 2017-04-104-0177

Based on: NVA 2017-04-104-0175  
Supersedes: NVA 2011-04-104-0062

BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709

**BASF**  
We create chemistry



# Arsenal<sup>®</sup>

Herbicide

## Applicators Concentrate

**For the control of undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland, and nonagricultural lands; and for the establishment and maintenance of wildlife openings, release of unimproved Bermudagrass and Bahiagrass, bareground weed control, and for use under certain paved surfaces**

### Active Ingredient:

isopropylamine salt of imazapyr:

(2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)\*..... 53.1%

**Other Ingredients:**..... 46.9%

**Total:**..... 100.0%

\* Equivalent to 43.3% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 4 pounds acid per gallon

EPA Reg. No. 241-299

EPA Est. No. 241-PR-002

## KEEP OUT OF REACH OF CHILDREN CAUTION/PRECAUCION

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

See attached booklet for complete **Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

**FIRST AID: 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 by a poison control center or doctor. **DO NOT** give anything to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. 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 in eyes:** Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact

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**Net Contents: 2.5 gallons**

lenses, if present, after first 5 minutes; then continue rinsing eyes. Call a poison control center or doctor for treatment advice. **HOTLINE NUMBER:** Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of an emergency endangering life or property involving this product, call BASF Corporation for emergency medical treatment information, day or night 1-800-832-HELP (4357).

### Precautionary Statements

#### Hazards to Humans and Domestic Animals

**CAUTION.** Harmful if swallowed. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist.

#### Physical and Chemical Hazards

Spray solutions of **Arsenal<sup>®</sup>** herbicide **Applicators Concentrate** must be mixed, stored and applied only in stainless steel, fiberglass, plastic and plastic-lined steel containers.

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.

#### Environmental Hazards

This product is toxic to plants. Drift and runoff may be hazardous to plants in water adjacent to treated areas. **DO NOT** apply to water except as specified in this label. Treatment of aquatic weeds may result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss may cause the suffocation of some aquatic organisms. **DO NOT** treat more than 1/2 of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas. **DO NOT** contaminate water when disposing of equipment washwaters or rinsate.

This pesticide is toxic to vascular plants and must be used strictly in accordance with the drift precautions on the label.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

#### Pesticide Storage

**DO NOT** store below 10° F.

#### Pesticide Disposal

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

#### Container Handling

**Nonrefillable Container. DO NOT reuse or refill this container.** Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

See attached booklet for complete container handling directions including triple rinsing and pressure rinsing instructions.

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### 1. Identification

#### Product identifier used on the label

## ARSENAL HERBICIDE APPL. CONC.

#### Recommended use of the chemical and restriction on use

Recommended use\*: herbicide

\* The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

#### Details of the supplier of the safety data sheet

##### Company:

BASF CORPORATION  
100 Park Avenue  
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

#### Emergency telephone number

CHEMTREC: 1-800-424-9300  
BASF HOTLINE: 1-800-832-HELP (4357)

#### Other means of identification

Substance number: 57487  
EPA Register number: 241-299  
Molecular formula: C(13) H(15) N(3) O(3). C(3) H(9) N  
Chemical family: imidazole derivative  
Synonyms: Isopropylamine salt of imazapyr

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### 2. Hazards Identification

**According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200**

#### Classification of the product

Aquatic Acute	1	Hazardous to the aquatic environment - acute
Aquatic Chronic	1	Hazardous to the aquatic environment - chronic

#### Label elements

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The product does not require a hazard warning label in accordance with GHS criteria.

### Hazards not otherwise classified

#### Labeling of special preparations (GHS):

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % dermal

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % oral

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % Inhalation - vapour

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % Inhalation - mist

#### According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

### Emergency overview

CAUTION:

KEEP OUT OF REACH OF CHILDREN.

Avoid contact with the skin, eyes and clothing.

Avoid inhalation of mists/vapours.

## 3. Composition / Information on Ingredients

#### According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
81510-83-0	53.1 %	Isopropylamine salt of imazapyr
64-19-7	0.1 - 1.0 %	Acetic acid
75-31-0	5.0 - 10.0 %	isopropylamine

#### According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
81510-83-0	53.1 %	Isopropylamine salt of imazapyr
	46.9 %	Proprietary ingredients

## 4. First-Aid Measures

### Description of first aid measures

#### General advice:

Remove contaminated clothing.

#### If inhaled:

Keep patient calm, remove to fresh air.

#### If on skin:

Wash thoroughly with soap and water.

#### If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

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### **If swallowed:**

Rinse mouth and then drink plenty of water.

### **Most important symptoms and effects, both acute and delayed**

Symptoms: No significant reaction of the human body to the product known.

### **Indication of any immediate medical attention and special treatment needed**

#### Note to physician

Antidote: No known specific antidote.

Treatment: Treat symptomatically.

Treatment: Symptomatic treatment (decontamination, vital functions).

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## **5. Fire-Fighting Measures**

### **Extinguishing media**

Suitable extinguishing media:  
foam, dry powder, carbon dioxide, water spray

### **Special hazards arising from the substance or mixture**

Hazards during fire-fighting:  
carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrocarbons,  
If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released if the product is involved in a fire.

### **Advice for fire-fighters**

Protective equipment for fire-fighting:  
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

### **Further information:**

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

---

## **6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

### **Environmental precautions**

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

### **Methods and material for containment and cleaning up**

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

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### 7. Handling and Storage

#### Precautions for safe handling

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

#### Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

#### Conditions for safe storage, including any incompatibilities

Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

### 8. Exposure Controls/Personal Protection

**Users of a pesticidal product should refer to the product label for personal protective equipment requirements.**

#### Components with occupational exposure limits

isopropylamine	OSHA PEL	PEL 5 ppm 12 mg/m <sup>3</sup> ; STEL value 10 ppm 24 mg/m <sup>3</sup> ; TWA value 5 ppm 12 mg/m <sup>3</sup> ;
	ACGIH TLV	TWA value 5 ppm ; STEL value 10 ppm ;

#### Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

#### Personal protective equipment

**RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:**

#### Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and



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vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

### Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

### Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

### Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

### General safety and hygiene measures:

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

## 9. Physical and Chemical Properties

Form:	liquid	
Odour:	strong, ammonia-like	
Odour threshold:		Not determined due to potential health hazard by inhalation.
Colour:	green	
pH value:	approx. 5 - 7	( 1 %(m), 20 °C)
Freezing point:	approx. 0 °C	( 1,013.3 hPa) Information applies to the solvent.
Boiling point:	approx. 100 °C	( 1,013.3 hPa) Information applies to the solvent.
Flash point:		not applicable Aqueous preparation
Flammability:	not applicable	
Lower explosion limit:		As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:		As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Autoignition:		not applicable Information applies to the solvent.
Vapour pressure:	approx. 23.4 hPa	( 20 °C) Information applies to the solvent.

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Density:	approx. 1.11 g/cm <sup>3</sup>	( 20 °C)
Vapour density:		not applicable
Partitioning coefficient n-octanol/water (log Pow):		not applicable
Thermal decomposition:	carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrocarbons Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. If product is heated above decomposition temperature hazardous fumes may be released.	
Viscosity, dynamic:	approx. 46.5 mPa.s	( 20 °C)
Solubility in water:		readily soluble
Molar mass:	320.4 g/mol	
Evaporation rate:		not applicable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

## 10. Stability and Reactivity

### Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:  
not fire-propagating  
Not an oxidizer.

### Chemical stability

The product is stable if stored and handled as prescribed/indicated.

### Possibility of hazardous reactions

The product is chemically stable.  
Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

### Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

### Incompatible materials

oxidizing agents, strong alkalies

### Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated., Prolonged thermal loading can result in products of degradation being given off.

Thermal decomposition:

Possible thermal decomposition products:

carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrocarbons

Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. If product is heated above decomposition temperature hazardous fumes may be released.

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### 11. Toxicological information

#### Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

#### Acute Toxicity/Effects

##### Acute toxicity

Assessment of acute toxicity: Relatively nontoxic after single ingestion. Slightly toxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

##### Oral

Type of value: LD50

Species: rat

Value: > 5,000 mg/kg

##### Inhalation

Type of value: LC50

Species: rat (male/female)

Value: > 5.0 mg/l (OECD Guideline 403)

Exposure time: 4 h

An aerosol was tested.

No mortality was observed.

##### Dermal

Type of value: LD50

Species: rabbit

Value: > 5,000 mg/kg

##### Irritation / corrosion

Assessment of irritating effects: May cause slight but temporary irritation to the eyes. May cause slight irritation to the skin.

##### Skin

Species: rabbit

Result: Slightly irritating.

Method: Primary skin irritation test

##### Eye

Species: rabbit

Result: non-irritant

##### Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

##### Buehler test

Species: guinea pig

Result: Skin sensitizing effects were not observed in animal studies.

Method: OECD Guideline 406

#### Chronic Toxicity/Effects

##### Repeated dose toxicity

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Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. No substance-specific organotoxicity was observed after repeated administration to animals.

### Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

### Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

### Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

### Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

### Other Information

Misuse can be harmful to health.

## Symptoms of Exposure

No significant reaction of the human body to the product known.

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## 12. Ecological Information

### Toxicity

#### Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to fish. There is a high probability that the product is not acutely harmful to aquatic invertebrates. Acutely harmful for aquatic plants.

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from the properties of the individual components.

#### Toxicity to fish

*Information on: Imazapyr*

*LC50 (96 h) >100PPM, Oncorhynchus mykiss (static)*

*LC50 (96 h) >100 ppm, Lepomis macrochirus (static)*

#### Aquatic invertebrates

*Information on: Imazapyr*

*EC50 (24 h) > 100 ppm, Daphnia magna*

# Safety Data Sheet

## ARSENAL HERBICIDE APPL. CONC.

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### Aquatic plants

*Information on: Imazapyr*  
*EC50 (96 h) >1 ppm, Selenastrum capricornutum (static)*  
*EC50 (14 d) 24, Lemna gibba*  
-----

### Assessment of terrestrial toxicity

With high probability not acutely harmful to terrestrial organisms.

### Other terrestrial non-mammals

*Information on: imazapyr*  
*LC50, Anas platyrhynchos*  
*With high probability not acutely harmful to terrestrial organisms.*  
*LD50 > 100 ug/bee, Apis mellifera*  
*With high probability not acutely harmful to terrestrial organisms.*  
-----

## **Persistence and degradability**

### Assessment biodegradation and elimination (H2O)

*Information on: Imazapyr*  
-----

## **Bioaccumulative potential**

### Assessment bioaccumulation potential

The product has not been tested. The statement has been derived from the properties of the individual components.

### Bioaccumulation potential

*Information on: Imazapyr*

*Bioconcentration factor: < 1.0, Lepomis macrochirus*  
*Does not accumulate in organisms.*  
-----

## **Mobility in soil**

### Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: Imazapyr*

*The substance will not evaporate into the atmosphere from the water surface.*  
*Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.*  
-----

## **Additional information**

Other ecotoxicological advice:

The ecological data given are those of the active ingredient. Do not release untreated into natural waters.

# Safety Data Sheet

## ARSENAL HERBICIDE APPL. CONC.

Revision date : 2014/12/23  
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### 13. Disposal considerations

#### Waste disposal of substance:

Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

#### Container disposal:

Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

#### RCRA:

This product is not regulated by RCRA.

### 14. Transport Information

#### Land transport

USDOT

Not classified as a dangerous good under transport regulations

#### Sea transport

IMDG

Hazard class: 9  
Packing group: III  
ID number: UN 3082  
Hazard label: 9, EHSM  
Marine pollutant: YES  
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains IMAZAPYR 43%)

#### Air transport

IATA/ICAO

Hazard class: 9  
Packing group: III  
ID number: UN 3082  
Hazard label: 9, EHSM  
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains IMAZAPYR 43%)

### 15. Regulatory Information

#### Federal Regulations

#### Registration status:

Chemical TSCA, US blocked / not listed

Crop Protection TSCA, US released / listed

# Safety Data Sheet

## ARSENAL HERBICIDE APPL. CONC.

Revision date : 2014/12/23  
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**EPCRA 311/312 (Hazard categories):** Acute; Chronic

**NFPA Hazard codes:**

Health : 1      Fire: 1      Reactivity: 0      Special:

**Labeling requirements under FIFRA**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

**CAUTION:**

KEEP OUT OF REACH OF CHILDREN.

Avoid contact with the skin, eyes and clothing.

Avoid inhalation of mists/vapours.

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## 16. Other Information

**SDS Prepared by:**

BASF NA Product Regulations

SDS Prepared on: 2014/12/23

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.  
END OF DATA SHEET

## **Proposed Administrative Consent Agreement Background Summary**

**Subject:** Certified Pest Management  
11 Town House Road  
Chelsea, ME 04330

**Date of Incident(s):** December 9, 2020

**Background Narrative:** On December 14, 2020, the Board received a complaint relative to a pesticide application made by the Company on December 9, 2020. The person emailing the Board reported that her cat had perished on December 11, 2020, as a result of the application.

On July 28, 2019, Laurie Dutil, Company owner, called the Board's office to report that the licensed Commercial Master Applicator for the Company had resigned. Dutil further reported that the Company would cease making commercial pesticide applications until such time as they were able to replace the licensed master applicator.

A Board inspector conducted a follow-up inspection on December 16, 2020. The Company owner provided Invoice No. 1662, that indicated vacuuming and steam treatment was conducted for bedbug control on December 9, 2020.

On January 13, 2021, the inspector received a copy of Invoice No. 1662 that was provided to a City of Augusta Code Enforcement Officer on December 14, 2020, by the complainant's landlord. The invoice copy states that a "residual pesticide treatment" was conducted in the complainant's apartment on December 9. The invoice differed from the one provided by the Company owner, which was identical with the exception that the reference to the pesticide application was omitted.

**Summary of Violations:** Submission of a false or fraudulent record in violation of 22 M.R.S. §1471-D(8)(G).

22 M.R.S. § 1471-D(1), requires certification and licensing for commercial pesticide applications. No one from the Company was certified at the time of the application.

**Rationale for Settlement:** Certified Pest Management, LLC is no longer in business per the certificate of cancellation received with signed proposed consent agreement. The owner of the former Company was willing to enter into the terms of the proposed consent agreement to bring closure to the violation.

**Attachments:** Proposed Consent Agreement



**STATE OF MAINE**  
**DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY**  
**BOARD OF PESTICIDES CONTROL**

CK#1972  
CK Date 11-24-23  
CK Amt \$1500-

In the Matter of:  
Certified Pest Management  
11 Town House Road  
Chelsea, Maine 04330

ADMINISTRATIVE CONSENT  
AGREEMENT  
AND  
FINDINGS OF FACT

This Agreement by and between Certified Pest Management (hereinafter called the “Company”) and the State of Maine Board of Pesticides Control (hereinafter called the “Board”), as approved by the Office of the Attorney General (“OAG”), is entered into pursuant to 22 M.R.S. § 1471-M(2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

- 1) That the Company provided commercial pest control services in Maine and was first licensed to do so beginning on June 27, 2016.
- 2) That on July 28, 2019, Laurie Dutil, Company owner, called the Board’s office to report that Michael Cote, the licensed Commercial Master Applicator for the Company, had resigned. Dutil further reported that the Company would cease making commercial pesticide applications until such time as they were able to replace Cote with a licensed master applicator.
- 3) That on December 14, 2020, the Board received complaint relative to a pesticide application made by the Company on December 9, 2020. The person emailing the Board reported that her cat had perished on December 11, 2020, as a result of the application.
- 4) That a Board inspector interviewed the complainant at the complainant’s residence in Augusta on December 16, 2020.
- 5) That on December 16, 2020, a Board inspector interviewed the property owner, Christopher Skehan, and obtained a copy of a pest a management service invoice for December 9, 2020.
- 6) That a Board inspector conducted a follow-up inspection with Company owner Laurie Dutil on December 16, 2020. Dutil provided Invoice No. 1662, issued to landlord Christopher Skehan regarding treatment provided at the Augusta apartment building on December 9, 2020. Said invoice indicates that vacuuming and steam treatment was conducted for bedbug control.
- 7) That during the follow-up inspection described in Paragraph 6, Dutil stated that there were no Commercial Applicators on staff and that the application of steam would be exempt from the Board licensing requirements.
- 8) That inspector received copy of Invoice No. 1662 on January 13, 2021, that landlord Christopher Skehan had provided to Code Enforcement Officer Keegan Ballard on December 14, 2020. The invoice copy states that a “residual pesticide treatment” was conducted in complainant’s apartment on December 9. Said invoice differed from the one provided by Company owner Dutil, which was identical with the exception that the reference to the pesticide application was omitted.
- 9) That the circumstances described in Paragraphs 1 through 8 constitute submission of a false or fraudulent record in violation of 22 M.R.S. §1471-D(8)(G).

- 10) That the circumstances described in Paragraphs 1 through 8 constitute a commercial pesticide application pursuant to 22 M.R.S. § 1471-C(5) and (5-A).
- 11) That custom pesticide applications may only be properly certified applicators, pursuant to 22 M.R.S. §1471-D(1).
- 12) That no one from the Company was certified at the time of the application described in this Agreement.
- 13) That the circumstances described in Paragraphs 1 through 12 constitute a violation of 22 M.R.S. § 1471-D(1)
- 14) That the Company expressly waives:
  - A. Notice of or opportunity for hearing;
  - B. Any and all further procedural steps before the Board; and
  - C. The making of any further findings of fact before the Board.
- 15) That this Agreement shall not become effective unless and until the Board accepts it.
- 16) That in consideration for the release by the Board and the OAG of the causes of action which the Board and the OAG have against the Company resulting from the violations referred to in Paragraphs 9 and 13, the Company agrees to pay a penalty to the State of Maine in the sum of \$3,000.00, with \$1,500.00 of the penalty suspended provided that the Company does not commit any violations of Federal or State of Maine pesticide law over a five-year period beginning on the effective date of this Agreement. The unsuspended portion of the penalty, \$1,500.00, shall be paid by December 1, 2023. (Please make checks payable to Treasurer, State of Maine).
- 17) That in the event the Company commits any violations of Federal or State of Maine pesticide law—as determined by Board staff in the normal course of compliance investigations—over the five-year period beginning on the effective date of this Agreement, the suspended portion of the penalty becomes immediately due and payable.
- 18) The Board and OAG grant a release of their causes of actions against the Company for the specific violations cited in Paragraphs 9 and 13 on the express condition that all actions listed in Paragraph 16 of this Agreement are completed in accordance with the express terms and conditions of this Agreement and to the satisfaction of the Board and the OAG. The release shall not become effective until the Company has completed its obligations pursuant to Paragraph 16.
- 19) Any non-compliance with any term or condition of this Agreement, as determined by the Board and OAG in their sole discretion, voids the release set forth in Paragraph 18 of this Agreement and may lead to an enforcement, suspension/revocation, equitable, and/or civil violation action pursuant to Titles 7 and 22 of the Maine Revised Statutes and/or M.R. Civ. P. 80H.
- 20) Nothing in this Agreement shall be construed to be a relinquishment of the Board's or OAG's powers under Titles 7 and 22 of the Maine Revised Statutes against the Company for any other violations other than those expressly listed in this Agreement.
- 21) This instrument contains the entire agreement between the parties, and no statements, promises, or inducements made by either party or agent of either party that are not contained in this written contract shall be valid or binding; this contract may not be enlarged, modified, or altered except in writing signed by the parties and indorsed on this Agreement.

22) The provisions of this Agreement shall apply to, and be binding on, the parties and their officers, agents, servants, employees, successors, and assigns, and upon those persons in active concert or participation with them who receive actual notice of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement of three pages.

CERTIFIED PEST MANAGEMENT

By:  Date: 11-29-2023

Type or Print Name: Laurie Dahl

BOARD OF PESTICIDES CONTROL

By: \_\_\_\_\_ Date: \_\_\_\_\_  
John Pietroski, Acting Director

APPROVED:

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Carey Gustanski, Assistant Attorney General

## **Proposed Administrative Consent Agreement Background Summary**

**Subject:** Mosquito Squad of Southern Maine  
28 Adams Way  
Scarborough, ME 04074

**Date of Incident(s):** May 25, 2023 & June 28, 2023

**Background Narrative:** On May 25, 2023, Joseph Eno, an employee of the Company, made an application of Bifen I/T, EPA Reg. No. 53883-118, and Fendona CS, EPA Reg. No. 499-570, to a residential property located at 189 Clifford Road in Phippsburg, Maine, using a motorized backpack for control of mosquitoes.

On May 25, 2023, the abutting landowner at 183 Clifford Rd. contacted the Board and stated that the wind was blowing from the application site toward the abutter's property. The abutting landowner further stated that the mist appeared to be moving toward the chicken coop.

On May 26, 2023, a Board inspector visited the site and collected residue samples from both the target site and the abutting property. The laboratory analysis report for a vegetative sample collected from the abutting property showed a concentration of bifenthrin at 0.026 parts per million. The laboratory analysis report for a vegetative sample collected from the target property showed a concentration of bifenthrin at 2.5 parts per million. The off-target residue is equal to approximately 1% of the target site residue.

On June 28, 2023, Justin Weeks, a licensed applicator employed by the Company, applied Bifen I/T, EPA Reg. No. 53883-118, Fendona CS, EPA Reg. No. 499-570 and Martins Permethrin 10%, EPA Reg. No. 53883-72 to a residential property located at 11 Monarch Drive, Kennebunk, Maine. An employee of the Board observed the application and noted that it was raining at the time of the application. The Board employee collected video evidence of the application and notified the Board inspector assigned to the geographical location.

**Summary of Violations:** CMR 01-026, Chapter 22, Section 4 (B) (I) states that, "Pesticide applications shall be undertaken in a manner which minimizes pesticide drift to the maximum extent practicable, having due regard for prevailing weather conditions, toxicity and propensity to drift of the pesticide, presence of Sensitive Areas in the vicinity, type of application equipment and other pertinent factors." The prima facie evidence, together with the standard of care exercised by the applicator and Company in allowing an uncertified applicator to apply pesticides using a motorized mist blower and directing the spray toward the property boundary when the wind direction favored movement toward the abutting property, is evidence that a violation of the general standard contained CMR 01-026, Chapter 22, Section 4 (B) (I).

7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label. The Fendona CS label, EPA Reg. No. 499-570, states, in part, “DO NOT make outdoor applications during rain.”

The violations described are considered subsequent violations within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).

**Rationale for Settlement:** The Company entered into an Administrative Consent Agreement and Findings of Fact with the Board on November 19, 2021, to resolve multiple violations of State pesticide law. The Company agreed to pay a fine to the State as part of the agreement and a portion of the fine—two thousand dollars—paid by the Company was suspended by the Board on the condition that the Company had no further violations of State pesticide law for a two-year period beginning on the date the agreement was fully executed. The Company committed at least two violations of State pesticide law during the two-year period. That in accordance with the agreement the Company entered into on November 19, 2021, the suspended portion of the fine is due immediately.

Mosquito Squad of Southern Maine is willing to enter into this proposed consent agreement to resolve the noted violations.

**Attachments:** Proposed Consent Agreement

STATE OF MAINE  
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY  
BOARD OF PESTICIDES CONTROL

NOV 29 2023  
CK # 1195  
Amt \$10000 -  
CK Date 11-21-23

In the Matter of: ) ADMINISTRATIVE CONSENT  
Mosquito Squad of Southern Maine ) AGREEMENT  
28 Adams Way ) AND  
Scarborough, Maine 04074 ) FINDINGS OF FACT

This Agreement by and between Mosquito Squad of Southern Maine (hereinafter referred to as the "Company") and the State of Maine Board of Pesticides Control (hereinafter referred to as the "Board"), as approved by the Office of the Attorney General ("OAG"), is entered into pursuant to 22 M.R.S. § 1471-M(2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

1. That the Company operates a Mosquito Squad franchise covering the southwestern areas of Maine. The Company provides a variety of pest management and commercial pesticide application services.
2. That on May 25, 2023, Joseph Eno, an employee of the Company, made an application of Bifen I/T, EPA Reg. No. 53883-118, and Fendona CS, EPA Reg. No. 499-570, to a residential property located at 189 Clifford Road in Phippsburg, Maine, using a motorized backpack for control of mosquitoes.
3. That at the time of the application described in Paragraph 2, Joseph Eno was neither certified nor licensed by the Board as a commercial applicator. A licensed commercial applicator was on site at the time of the application, but not within visual or voice contact when Mr. Eno was on the back side of the house.
4. That an abutting landowner located at 183 Clifford Road observed the application described in Paragraph 2 and became concerned when the applicator directed spray toward the wooded area separating the properties. The abutting landowner inquired with Mr. Eno about what was being applied. According to the landowner, Mr. Eno replied that he did not know.
5. That on May 25, 2023, the abutting landowner contacted the Board and stated that the wind was blowing from the application site toward the abutter's property. The abutting landowner further stated that the mist appeared to be moving toward the chicken coop. The landowner stated that he/she experienced symptoms including burning lips and tongue and a severe headache.
6. That on May 26, 2023, a Board inspector visited the site and collected residue samples from both the target site and the abutting property.
7. That on June 1, 2023, a Board inspector conducted a follow-up inspection with Company employees Scott Conrad, who has supervisory responsibilities, and applicators Michael and Joseph Eno.
8. That the laboratory analysis report for a vegetative sample collected from the abutting property showed a concentration of bifenthrin at 0.026 parts per million.
9. That the laboratory analysis report for a vegetative sample collected from the target property showed a concentration of bifenthrin at 2.5 parts per million.
10. That the off-target residue described in Paragraph 8 is equal to approximately 1% of the target site residue described in Paragraph 9.

11. That the circumstances described in Paragraphs 8 and 9 are considered prima facie evidence that the application was not conducted in a manner to minimize drift to the maximum extent practicable pursuant to CMR 01-026, Chapter 22, Section 4 (B) (II).
12. That CMR 01-026, Chapter 22, Section 4 (B) (I) that, "Pesticide applications shall be undertaken in a manner which minimizes pesticide drift to the maximum extent practicable, having due regard for prevailing weather conditions, toxicity and propensity to drift of the pesticide, presence of Sensitive Areas in the vicinity, type of application equipment and other pertinent factors."
13. That the prima facie evidence described in Paragraph 11 together with the standard of care exercised by the applicator and Company in allowing an uncertified applicator to apply pesticides using a motorized mist blower and directing the spray toward the property boundary when the wind direction favored movement toward the abutting property, is evidence that a violation of the general standard contained CMR 01-026, Chapter 22, Section 4 (B) (I).
14. That the circumstances described in Paragraphs 1 through 13 constitute a violation of CMR 01-026, Chapter 22, Section 4 (B) (I).
15. That on June 28, 2023, Justin Weeks, a licensed applicator employed by the Company, applied Bifen I/T, EPA Reg. No. 53883-118, Fendona CS, EPA Reg. No. 499-570 and Martins Permethrin 10%, EPA Reg. No. 53883-72 to a residential property located at 11 Monarch Drive, Kennebunk, Maine.
16. That an employee of the Board observed the application described in Paragraph 15 and noted that it was raining at the time of the application. The Board employee collected video evidence of the application and notified the Board inspector assigned to the geographical location.
17. That on June 28, 2023, the Board inspector conducted an on-site inspection with Justin Weeks upon being notified of the application described in Paragraph 15. The inspector documented pertinent details related to the application, the weather conditions and the soil saturation. The inspector also collected National Oceanic and Atmospheric Administration (NOAA) weather data arising from the Sanford Airport June 27 and 28, 2023. The NOAA weather data provided additional evidence/confirmation of the rainy conditions on the June 27 and 28.
18. That the Bifen I/T label, EPA Reg. No. 53883-118, states, in part, "This pesticide is extremely toxic to fish and aquatic invertebrates." The Bifen I/T label also states, "Applying this product in calm weather when rain is not predicted for the next 24 hours will help ensure that wind or rain does not blow or wash pesticide off the treatment area.
19. That the Fendona CS label, EPA Reg. No. 499-570, states, in part, "DO NOT make outdoor applications during rain."
20. That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use or supervision of such use of a pesticide inconsistent with its label.
21. That the circumstances described in Paragraphs 15, 16, 17, 19 and 20 constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).
22. That the Company entered into an Administrative Consent Agreement and Findings of Fact with the Board on November 19, 2021, to resolve multiple violations of State pesticide law.

23. That the Company agreed to pay a fine to the State as part of the agreement described in Paragraph 22. A portion of the fine—two thousand dollars—paid by the Company was suspended by the Board on the condition that the Company had no further violations of State pesticide law for a two-year period beginning on the date the agreement was fully executed.
24. That the Company committed at least two violations of State pesticide law during the two-year period.
25. That in accordance with the agreement the Company entered into on November 19, 2021, the suspended portion of the fine is due immediately.
26. That the violations described in Paragraphs 14 and 21 are considered subsequent violations within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).
27. That the Company expressly waives:
  - A. Notice of or opportunity for hearing;
  - B. Any and all further procedural steps before the Board; and
  - C. The making of any further findings of fact before the Board.
28. That this Agreement shall not become effective unless and until the Board accepts it.
29. That the Company is obligated to immediately pay the suspended portion of the fine agreed upon in the Administrative Consent Agreement and Findings of Fact which the Company entered into on November 19, 2021. The suspended portion is \$2,000.00, due by November 21, 2023. (Please make checks payable to Treasurer, State of Maine).
30. That in consideration for the release by the Board of the causes of action which the Board has against the Company resulting from the violations referred to in Paragraphs 14 and 21, the Company agrees to pay a penalty to the State of Maine in the sum of \$8,000.00, due by November 21, 2023. (Please make checks payable to Treasurer, State of Maine).
31. The Board and OAG grant a release of their causes of actions against the Company for the specific violations cited in the immediately preceding Paragraph (Paragraphs 29 and 30) on the express condition that all actions listed in Paragraph 30 of this Agreement are completed in accordance with the express terms and conditions of this Agreement and to the satisfaction of the Board and the OAG. The release shall not become effective until the Company has completed its obligations pursuant to Paragraphs 29 and 30.
32. Any non-compliance with any term or condition of this Agreement, as determined by the Board and OAG in their sole discretion, voids the release set forth in Paragraph 31 of this Agreement and may lead to an enforcement, suspension/revocation, equitable, and/or civil violation action pursuant to Titles 7 and 22 of the Maine Revised Statutes and/or M.R. Civ. P. 80H.
33. Nothing in this Agreement shall be construed to be a relinquishment of the Board's or OAG's powers under Titles 7 and 22 of the Maine Revised Statutes against the Company for any other violations other than those expressly listed in this Agreement.
34. This instrument contains the entire agreement between the parties, and no statements, promises, or inducements made by either party or agent of either party that are not contained in this written contract shall be valid or binding; this contract may not be enlarged, modified, or altered except in writing signed by the parties and indorsed on this Agreement.



35. The provisions of this Agreement shall apply to, and be binding on, the parties and their officers, agents, servants, employees, successors, and assigns, and upon those persons in active concert or participation with them who receive actual notice of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement of four pages.

MOSQUITO SQUAD OF SOUTHERN MAINE

By:  Date: 11-29-23

Type or Print Name: Erik Harrison

BOARD OF PESTICIDES CONTROL

By: \_\_\_\_\_ Date: \_\_\_\_\_

John Pietroski, Acting Director

APPROVED:

By: \_\_\_\_\_ Date: \_\_\_\_\_

Carey Gustanski, Assistant Attorney General

**Proposed Administrative Consent Agreement  
Background Summary**

**Subject:** TruGreen Lawncare  
2 Delta Drive  
Westbrook, ME 04092

**Date of Incident(s):** June 25, 2020 - September 15, 2022

**Background Narrative:** On October 10, 2020, a licensed applicator for TruGreen Lawncare applied Talstar P Insecticide, EPA Reg. No. 279-3206, to a residential property located in Saco, Maine for control of mosquitoes and ticks. Prior to the start of the application, a TruGreen co-worker asked the applicator to hold-off applying the insecticide in the backyard so that they could complete the lawn aeration service assigned to them. The applicator ignored the request of their co-worker, and the individual was exposed to the spray solution while conducted the lawn aeration. The exposed worker sought medical attention.

On October 29 & November 5, of 2020 a licensed applicator for TruGreen Lawncare experienced exposure to Talstar P Insecticide, EPA Reg. No. 279-3206, when the powered backpack being used for the application had a leak and the applicator's clothing became saturated with the pesticide and contacted their skin. The applicator was not instructed to properly wash themselves or their clothing and was encouraged to continue working.

Prior to pesticide applications conducted on March 22, 2021, May 10, 2021, June 30, 2021, & August 22, 2022, TruGreen Lawncare failed to notify a member of the Pesticide Notification Registry in Cape Elizabeth. Failure to notify the same registrant on several occasions was settled with Board in Consent Agreement in January of 2020.

During a pesticide spray application to a lawn with powered spray equipment conducted by a licensed applicator for TruGreen Lawncare on May 26, 2021, in Westbrook, Maine a neighbor was exposed to Merit 2F Systemic Insecticide, EPA Reg. No. 432-1312, Barricade 4FL Herbicide, EPA Reg. No. 110-1139, & Escalade 2 Herbicide, EPA Reg. No. 228-442, through drift.

On June 3, 2021, a licensed applicator for TruGreen Lawncare was conducting herbicide applications with Turpower 3 Herbicide, EPA Reg. No. 228-551, to common space lawn areas in a neighborhood in Scarborough, Maine. The applicator was observed not wearing the proper PPE (Personal Protective Equipment). The ensuing inspection confirmed the failure to wear proper PPE and the application being conducted with powered spray equipment was done at higher wind speeds the label allows.

**Summary of Violations:** CMR 01-026, Chapter 28, Section 2 (D) requires commercial applicators to provide advance notification of outdoor pesticide applications made within 250 feet of the property of any participant on the current year Notification Registry.

The violations described above are considered a second, third, fourth and fifth offense within a four-year period pursuant to 7 M.R.S. § 616-A (2) A (2).

7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use of a pesticide inconsistent with its label.

The Talstar P label contains the following statements: “Do not apply this product in a way that will contact any person or pet either directly or through spray drift.” “Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.”

Barricade 4FL label contains the following statement: “Do not apply this product in a way that will contact workers or other persons, either directly or through drift.”

Escalade 2 label contains the following statement: “Do not apply this product in a way that will contact workers or other persons, either directly or through drift.”

CMR 01-026, Chapter 22, Section 2 (D) contains the statement: “The applicator shall cease spray activities at once upon finding evidence showing the likely presence of unprotected persons in the target area or in such proximity as to result in unconsented exposure to pesticides.”

The Trupower 3 label contains the following statements: “All mixers, loaders, applicators and other handlers must wear:

- a) Long-sleeved shirt and long pants
- b) Shoes plus socks, and
- c) Protective eyewear (Goggles or face shield or shielded safety glasses)
- d) Chemical-resistant gloves (except for applicators using groundboom equipment).
- e) Chemical-resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.
- f) Do not apply at wind speeds greater than 10 mph.”

**Rationale for Settlement:** TruGreen Lawncare failed to contact a member of the Pesticide Notification Registry on four occasions. Pesticide applications conducted by applicators allowed exposure to pesticides through direct contact and drift on four separate occasions. The incidents of exposure, failure to wear proper PPE and applications during high wind speed are all violations of pesticide labeling. These violations occurred within a four-year period of a previously settled consent agreement that included failure to notify members of the Pesticide Notification Registry, applications in high winds and applications to the incorrect property.

**Attachments:** Proposed Consent Agreement

NOV 22 2023

STATE OF MAINE  
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY  
BOARD OF PESTICIDES CONTROL

Ck Amount \$25000-  
Ck Date 11-13-23  
Ck # 60533856

In the Matter of: ) ADMINISTRATIVE CONSENT  
TruGreen Lawncare ) AGREEMENT  
2 Delta Drive ) AND  
Westbrook, Maine 04092 ) FINDINGS OF FACT

This Agreement by and between TruGreen Lawncare (hereinafter referred to as the "Company") and the State of Maine Board of Pesticides Control (hereinafter referred to as the "Board"), as approved by the Office of the Attorney General ("OAG"), is entered into pursuant to 22 M.R.S. § 1471-M(2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

- 1) That the Company provides a variety of turf, landscaping and mosquito control services across the United States, including the State of Maine. Said services include pesticide applications.
- 2) That on October 10, 2020, Daniel Berensen, a Company employee was aerating a customer's lawn at 20 Wedgewood Drive in Saco, Maine.
- 3) That during the lawn aeration process described in paragraph two, Patrick O'Donnell, another Company employee arrived at the same address to make a tick and mosquito control application using Talstar P Insecticide, EPA Reg. No. 279-3206.
- 4) That Berensen spoke to O'Donnell explaining that he only needed to finish aerating behind the house prior to departing the location. Berenson believed that O'Donnell would therefore refrain from spraying in his immediate vicinity until he was finished.
- 5) That shortly thereafter, O'Donnell began spraying behind the house while Berenson was still present. Berenson was directly down wind of O'Donnell.
- 6) That Berenson stated that immediately he was "hit by the chemical."
- 7) That approximately an hour later, Berenson reported that he began to experience symptoms including a hot sensation on his face, burning eyes and nausea.
- 8) That Berensen's supervisor instructed him to seek a medical evaluation at a Concentra Urgent Care location in Portland. According to Berensen, the attending physician advised him to monitor his symptoms for the next few days and seek additional attention if symptoms worsened.
- 9) That the Talstar P label contains the following statements: "Do not apply this product in a way that will contact any person or pet either directly or through spray drift. Do not allow people or pets on treated surfaces until spray has dried. Let surfaces dry before allowing people or pets to contact surfaces."
- 10) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use or supervision of such use of a pesticide inconsistent with its label.

- 11) That the circumstances described in paragraphs two through ten constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).
- 12) That CMR 01-026, Chapter 22, Section 2 (D) contains the statement: "The applicator shall cease spray activities at once upon finding evidence showing the likely presence of unprotected persons in the target area or in such proximity as to result in unconsented exposure to pesticides."
- 13) That the Company applicator did not cease spray activities when in such proximity to Berensen so as to result in unconsented exposure to pesticides.
- 14) That the circumstances described in paragraphs two through ten and thirteen constitute a violation of CMR 01-026, Chapter 22, Section 2 (D).
- 15) That Brett Haynes, a Company employee, contacted the Board with concerns about a series of chemical discharges that occurred during the course of Haynes' work for the Company between October 29 and November 5, 2020.
- 16) That during the first chemical discharge event on October 29, Haynes' backpack, containing a spray solution of Talstar P Insecticide, EPA Reg. No 279-3206, developed a leak which quickly saturated Haynes' underpants, undershirt, pants and shirt.
- 17) That Haynes returned to the Westbrook branch location whereupon he was provided a clean set of pants and a replacement backpack, and he was instructed to continue spraying.
- 18) That two additional chemical discharge events occurred on November 3 and November 5. The November 3 event resulted in a small spill. The November 5 event resulted in the loss of 2.5 gallons of spray mix and another chemical exposure event in which Haynes' pants became saturated.
- 19) That the Talstar P label contains the following statement: "Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing."
- 20) That upon returning to the Westbrook branch following the exposure incident on October 29, Haynes was not instructed to remove all saturated clothing and to thoroughly wash exposed skin.
- 21) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use of a pesticide inconsistent with its label.
- 22) That the Company's supervision of the use of Talstar P was inconsistent with the product labeling.
- 23) That the circumstances described in paragraphs fifteen through twenty-two constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).
- 24) That the Company entered into an Administrative Consent Agreement and Findings of Fact with the Maine Board of Pesticides Control ratified by the Board on January 15, 2020, in which the Company acknowledged a series of Maine pesticide law violations which occurred in calendar years 2017, 2018 and 2019.
- 25) That among the violations acknowledged in the Consent Agreement described in paragraph twenty-four was an August 13, 2019, turf pesticide application to 28 Wood Road in Cape Elizabeth, Maine.

- 26) That the violation described in paragraph twenty-five was to a property listed as an abutter to a participant in the 2019 Maine Pesticide Notification Registry, thereby requiring notification to the participant, Sarvenaz Maisak.
- 27) That the Company acknowledged failing to notify Maisak prior to the August 13, 2019, application in violation of CMR 01-026, Chapter 28, Section 2 (D).
- 28) That on March 22, 2021, a Company employee applied Omni Supreme Spray (insecticide-miticide) Liquid, EPA Reg. No. 5905-368 to dormant landscape plants at 22 Wood Road in Cape Elizabeth.
- 29) That 22 Wood Road is listed as an abutter to a participant in the 2021 Pesticide Notification Registry, Sarvenaz Maisak.
- 30) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.
- 31) That Company did not notify Maisak prior to the pesticide application described in paragraph twenty-eight.
- 32) That the circumstances described in paragraphs twenty-eight through thirty-one constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).
- 33) That the violation described in paragraph thirty-two is a second violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).
- 34) That on May 10, 2021, a Company employee applied Escalade 2 Herbicide, EPA Reg. No. 228-442 to the turf areas at 22 Wood Road in Cape Elizabeth.
- 35) That 22 Wood Road is listed as an abutter to a participant in the 2021 Pesticide Notification Registry, Sarvenaz Maisak.
- 36) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.
- 37) That Company did not notify Maisak prior to the pesticide application described in paragraph thirty-four.
- 38) That the circumstances described in paragraphs thirty-four through thirty-seven constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).
- 39) That the violation described in paragraph thirty-eight is a third violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).
- 40) That on June 30, 2021, a Company employee applied Merit 2F insecticide, EPA Reg. No. 432-1312 and Trupower 3 herbicide, EPA Reg. No. 228-551 to the turf areas at 22 Wood Road in Cape Elizabeth.
- 41) That 22 Wood Road is listed as an abutter to a participant in the 2021 Pesticide Notification Registry, Sarvenaz Maisak.
- 42) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.
- 43) That Company did not notify Maisak prior to the pesticide application described in paragraph forty.

- 44) That the circumstances described in paragraphs forty through forty-three constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).
- 45) That the violation described in paragraph forty-four is a fourth violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).
- 46) That on August 22, 2022, a Company employee applied Tempo SC Ultra Insecticide, EPA Reg. No. 432-1363, Eagle 20 EW Specialty Fungicide, EPA Reg. No. 62719-463 and Forbid 4F Ornamental Insecticide/Miticide, EPA Reg. No. 432-1279 to the landscape plants at 22 Wood Road in Cape Elizabeth.
- 47) That 22 Wood Road is listed as an abutter to a participant in the 2022 Pesticide Notification Registry, Sarvenaz Maisak.
- 48) That CMR 01-026, Chapter 28, Section 2 (D) requires pesticide applicators to notify registry participants prior to making an application to properties listed as abutters on the registry.
- 49) That Company did not notify Maisak prior to the pesticide application described in paragraph forty-six.
- 50) That the circumstances described in paragraphs forty-six through forty-nine constitute a violation of CMR 01-026, Chapter 28, Section 2 (D).
- 51) That the violation described in paragraph fifty is a fifth violation within a four-year period pursuant to 7 M.R.S. § 616-A(2)(A)(2).
- 52) That on May 26, 2021, John Sullivan, an employee for the Company applied Merit 2F, EPA Reg. No 432-1312, Barricade 4FL, EPA Reg. No. 100-1139 and Escalade 2, EPA Reg. No 228-442 to the turf areas located at 250 Duck Pond Road in Westbrook, Maine.
- 53) That during the course of the application described in paragraph fifty-two, John Stewart, an abutting neighbor, emerged from his back door onto his back lawn.
- 54) That Stewart immediately detected a chemical taste in his mouth and his eyes started burning.
- 55) That Stewart quickly identified the source of the chemical exposure as arising from the turf pesticide application taking place on the abutting lawn.
- 56) That Stewart stated that the wind speed was 14 miles per hours blowing from the application site toward his property.
- 57) That Stewart subsequently approached the Company applicator and requested that the applicator cease and desist due to the weather conditions and the proximity to him and his property.
- 58) That a heated exchange ensued between Stewart and the Company applicator who expressed the view that it was proper from him to continue.
- 59) That ultimately the applicator agreed to switch to a granular application.
- 60) That the Barricade 4FL label contains the following statement: "Do not apply this product in a way that will contact workers or other persons, either directly or through drift."


- 61) That the Escalade 2 label contains the following statement: “Do not apply this product in a way that will contact workers or other persons, either directly or through drift.”
- 62) That the spray mists from the application described in paragraph fifty-two contacted John Stewart.
- 63) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator’s license and/or certification for use or supervision of such use of a pesticide inconsistent with its label.
- 64) That the Company employee’s use of Barricade 4FL and Escalade 2 was inconsistent with the product labeling.
- 65) That the circumstances described in paragraphs fifty-two through sixty-four constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator’s license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).
- 66) That CMR 01-026, Chapter 22, Section 2 (D) states that “The applicator shall cease spray activities at once upon finding evidence showing the likely presence of unprotected persons in the target area or in such proximity as to result in unconsented exposure to pesticides.”
- 67) That the Company applicator described in paragraph fifty-two did not cease spray activities when John Stewart came into such proximity as to result in unconsented exposure.
- 68) That the circumstances described in paragraphs sixty-six and sixty-seven constitute a violation of CMR 01-026, Chapter 22, Section 2 (D).
- 69) That on June 3, 2021, Reginald Poulin, a Company employee, applied Trupower 3 herbicide, EPA Reg. No. 228-551 to the turf areas of the commonly owned property at Scottow Hill Woods, 1 Plantation Drive in Scarborough, Maine.
- 70) That the Board received a complaint from Deven Morrill relating to the application described in paragraph sixty-nine.
- 71) That Morrill alleged that the Company applicator was not wearing appropriate protective equipment.
- 72) That Morrill alleged that the windspeeds were high during the application described in paragraph sixty-nine.
- 73) That the Trupower 3 label contains the following statements: “All mixers, loaders, applicators and other handlers must wear:
- a) Long-sleeved shirt and long pants
  - b) Shoes plus socks, and
  - c) Protective eyewear (Goggles or face shield or shielded safety glasses)
  - d) Chemical-resistant gloves (except for applicators using groundboom equipment).
  - e) Chemical-resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.
  - f) Do not apply at wind speeds greater than 10 mph.”
- 74) That the Company applicator was not wearing a long sleeve shirt or chemical resistant gloves at the time of the application described in paragraph sixty-nine.
- 75) That the Company applicator recorded a windspeed 11.5 miles per hour on the applicator record.



- 76) That 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) prohibit the use or supervision of such use of a pesticide inconsistent with its label, and 22 M.R.S. § 1471-D(8)(F) provides for court action to seek suspension or revocation of an applicator's license and/or certification for use or supervision of such use of a pesticide inconsistent with its label.
- 77) That the Company employee's use of Trupower 3 was inconsistent with the product labeling.
- 78) That the circumstances described in paragraphs sixty-nine through seventy-seven constitute a violation of 7 U.S.C. § 136j(a)(2)(G) and 7 M.R.S. § 606(2)(B) and would permit court action to seek suspension or revocation of an applicator's license and/or certification pursuant to 22 M.R.S. § 1471-D(8)(F).
- 79) That the Company expressly waives:
- A. Notice of or opportunity for hearing;
  - B. Any and all further procedural steps before the Board; and
  - C. The making of any further findings of fact before the Board.
- 80) That this Agreement shall not become effective unless and until the Board accepts it.
- 81) That in consideration for the release by the Board and the OAG of the causes of action which the Board and the OAG have against the Company resulting from the violations referred to in paragraphs eleven, fourteen, twenty-three, thirty-two, thirty-eight, forty-four, fifty, sixty-five, sixty-eight and seventy-eight, the Company agrees to pay a penalty to the State of Maine in the sum of \$25,000.00 by November 27, 2023. (Please make checks payable to Treasurer, State of Maine).
- 82) The Board and OAG grant a release of their causes of actions against the Company for the specific violations cited in the immediately preceding paragraph (Paragraph 81) on the express condition that all actions listed in Paragraph 81 of this Agreement are completed in accordance with the express terms and conditions of this Agreement and to the satisfaction of the Board and the OAG. The release shall not become effective until the Company has completed its obligations pursuant to Paragraph 81.
- 83) Any non-compliance with any term or condition of this Agreement, as determined by the Board and OAG in their sole discretion, voids the release set forth in Paragraph 82 of this Agreement and may lead to an enforcement, suspension/revocation, equitable, and/or civil violation action pursuant to Titles 7 and 22 of the Maine Revised Statutes and/or M.R. Civ. P. 80H.
- 84) Nothing in this Agreement shall be construed to be a relinquishment of the Board's or OAG's powers under Titles 7 and 22 of the Maine Revised Statutes against the Company for any other violations other than those expressly listed in this Agreement.
- 85) This instrument contains the entire agreement between the parties, and no statements, promises, or inducements made by either party or agent of either party that are not contained in this written contract shall be valid or binding; this contract may not be enlarged, modified, or altered except in writing signed by the parties and indorsed on this Agreement.
- 86) The provisions of this Agreement shall apply to, and be binding on, the parties and their officers, agents, servants, employees, successors, and assigns, and upon those persons in active concert or participation with them who receive actual notice of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement of seven pages.

TRUGREEN LAWNCARE

By:  Date: November 21, 2023

Type or Print Name: Carol J. Pearson, Vice President

BOARD OF PESTICIDES CONTROL

By: \_\_\_\_\_ Date: \_\_\_\_\_  
John Pietroski, Acting Director

APPROVED:

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Carey Gustanski, Assistant Attorney General

## **Proposed Administrative Consent Agreement Background Summary**

**Subject:** Insight Pest Solutions Maine, LLC  
60 Gray Road, Building 3, Unit 13  
Falmouth, ME 04105

**Date of Incident(s):** April 2022 – December 2022

**Background Narrative:** On June 17, 2022, the Board received an anonymous complaint alleging that the Company employed nine different unlicensed applicators who routinely performed commercial pesticide applications in Maine during 2022.

On June 22, 2022, following two pesticide use inspections conducted with Company, a Board Representative called Brian Brown, an employee of the Company with supervisory responsibilities, to ensure that Company management was aware that violations of Maine’s pesticide licensing laws were occurring.

On August 22, 2022, the Board mailed a Notice of Warning to the Company, including the owner and Chief Executive Officer, Thomas Flaherty, stating that Board had information demonstrating that the Company was employing unlicensed applicators to make commercial pesticide applications in the State of Maine. The Notice of Warning further stated that Maine law requires all commercial applicators to be properly licensed before making commercial applications.

On August 30, 2022, a Board representative conducted an on-site pesticide use inspection with a Company applicator who was not properly licensed in conformance with Maine pesticide law.

On September 16, 2022, a Board representative emailed and mailed an “Urgent Notice of Ongoing Violations of Maine Pesticide Law.” The letter reaffirmed that multiple Company applicators continued to make unlicensed pesticide applications in violation of Maine pesticide law. It went to list the potential penalties for a first and any subsequent violations.

On May 15, 2023, pursuant to the Board’s statutory and regulatory authority, a Board representative emailed and mailed a letter to Brian Brown and Thomas Flaherty requesting copies of all pesticide application records for applications conducted in the State of Maine during 2022 and 2023. The Company subsequently provided copies of said records to the Board electronically.

A review of the records that the Company provided demonstrated that—during 2022—there were 95 commercial pesticide applications conducted in Maine by Company applicators who were neither certified nor licensed and 905 commercial pesticide applications conducted in Maine by Company applicators who were certified but not licensed with the Company.

**Summary of Violations:** CMR 01-026, Chapter 31, Section 1 (A) prohibits commercial application of pesticides by applicators who are not properly licensed.

The Company committed 1,000 violations of CMR 01-026, Chapter 31, Section 1 (A), of which 999 are considered subsequent violations pursuant to 7 M.R.S. § 616-A(2)(A)(2). That of the 1,000 violations, at least 700 occurred after a Board representative spoke on phone with the Company on June 22, 2022, to inform the Company about the unlawful applications.

**Rationale for Settlement:** Insight Pest Solutions Maine LLC is currently operating in compliance with Maine pesticide laws, rules and regulations concerning certification and licensure. The Company has installed a certified/licensed commercial master applicator at the Falmouth branch to oversee the day-to-day operations of the Company. Agreeing to the terms of this proposed consent agreement will keep Insight Pest Solutions Maine LLC liable for these committed violations for the next five years.

**Attachments:** Proposed Consent Agreement

STATE OF MAINE  
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY  
BOARD OF PESTICIDES CONTROL

NOV 29 2023

CK Amt: \$ 3412.00  
CK # 4313005860  
Date: 11-27-23

In the Matter of:	)	ADMINISTRATIVE CONSENT
Insight Pest Solutions Maine LLC	)	AGREEMENT
60 Gray Road, Building 3, Unit 13	)	AND
Falmouth, Maine 04105	)	FINDINGS OF FACT

This Agreement by and between Insight Pest Solutions Maine LLC (hereinafter referred to as the "Company") and the State of Maine Board of Pesticides Control (hereinafter referred to as the "Board"), as approved by the Office of the Attorney General ("OAG"), is entered into pursuant to 22 M.R.S. § 1471-M(2)(D) and in accordance with the Enforcement Protocol amended by the Board on December 13, 2013.

The parties to this Agreement agree as follows:

- 1) That the Company provides structural pest control and pesticide application services across many parts of the United States including Maine.
- 2) That on June 17, 2022, the Board received an anonymous complaint alleging that the Company employed nine different unlicensed applicators who routinely performed commercial pesticide applications in Maine during 2022. The caller provided a complete list of names for the nine applicators and numerous details about the pesticide applications and the operation of the Company during the spring of 2022. The caller alleged that over 300 applications had been made by unlicensed applicators by the date of complaint.
- 3) That, in response to the allegations, Board representatives conducted two separate on-site pesticide application inspections (pesticide use inspections) with two different Company applicators on June 22, 2022. At the time of the inspections, one of applicators was neither certified nor licensed, while the other applicator was certified but not licensed with the Company.
- 4) That during the course of the inspections described in paragraph three, the Board representatives informed the Company applicators that they were not properly licensed in conformance with Maine pesticide law to conduct commercial structural pesticide applications in the State of Maine.
- 5) That on June 22, 2022, following the two pesticide use inspections described in paragraph three, a Board Representative called Brian Brown, an employee of the Company with supervisory responsibilities, to ensure that Company management was aware that violations of Maine's pesticide licensing laws were occurring.
- 6) That on July 14, 2022, two Board representatives agreed to meet with one former employee of the Company and one current employee of the Company. These two individuals stated that there were a number of unlicensed Company applicators routinely conducting commercial pesticide applications in the State of Maine. They further stated that the Company was fully aware that unlicensed commercial applications were occurring in violation of Maine pesticide law. Both individuals provided written statements to the Board.
- 7) That on August 22, 2022, the Board mailed a Notice of Warning to the Company, including the owner and Chief Executive Officer, Thomas Flaherty, stating that Board had information demonstrating that the Company was employing unlicensed applicators to make commercial pesticide applications in the State of Maine. The Notice of Warning further stated that Maine law requires all commercial applicators to be properly licensed before making commercial applications.


- 8) That on August 30, 2022, a Board representative conducted an on-site pesticide use inspection with a Company applicator who was not properly licensed in conformance with Maine pesticide law. The Company applicator was informed about the Maine pesticide applicator licensing requirements and about the ongoing violations of Maine pesticide law.
- 9) That on September 16, 2022, a Board representative emailed and mailed an “Urgent Notice of Ongoing Violations of Maine Pesticide Law.” The letter was emailed and mailed to Brian Brown and Thomas Flaherty. Brian Brown is a Company employee with supervisory responsibilities and Thomas Flaherty is the owner and Chief Executive Officer. The letter reaffirmed that multiple Company applicators continued to make unlicensed pesticide applications in violation of Maine pesticide law. It went to list the potential penalties for a first and any subsequent violations.
- 10) That the Company never contacted the Board as a result of the Board’s repeated efforts to ensure that the Company was fully apprised about the repeated and ongoing violations on Maine’s pesticide applicator licensing requirements.
- 11) That on December 13, 2022, two Board representatives visited the Company’s Maine base of operations in Falmouth, Maine, in an effort to obtain copies of Company pesticide application records for the 2022 season. The two Company employees present at the time of inspection stated they were unable to access past records and suggested that the Board representatives return the following week when Brian Brown would be present.
- 12) That on January 17, 2023, a Board representative returned to Company’s Maine base of operations in a second attempt to obtain copies of the Company’s 2022 Maine pesticide application records. The Board representative met with Kenneth Hidenfelter, who was licensed as a Master Commercial Applicator in the State of Maine, and Thomas Flaherty, Company owner and CEO. Hidenfelter and Flaherty stated they were unable to produce any pesticide application records at that time.
- 13) That on May 15, 2023, pursuant to the Board’s statutory and regulatory authority, a Board representative emailed and mailed a letter to Brian Brown and Thomas Flaherty requesting copies of all pesticide application records for applications conducted in the State of Maine during 2022 and 2023.
- 14) That the Company subsequently provided copies of said records to the Board electronically.
- 15) That a review of the records that the Company provided demonstrated that—during 2022—there were 95 commercial pesticide applications conducted in Maine by Company applicators who were neither certified nor licensed.
- 16) That a review of the records that the Company provided demonstrated that—during 2022—there were 905 commercial pesticide applications conducted in Maine by Company applicators who were certified but not licensed with the Company.
- 17) That CMR 01-026, Chapter 31, Section 1 (A) prohibits commercial application of pesticides by applicators who are not properly licensed.
- 18) That the actions described in paragraphs fifteen and sixteen constitute 1,000 violations of CMR 01-026, Chapter 31, Section 1 (A), of which 999 are considered subsequent violations pursuant to 7 M.R.S. § 616-A(2)(A)(2).
- 19) That of the 1,000 violations described in paragraphs fifteen and sixteen, at least 700 occurred after a Board representative spoke on phone with the Company on June 22, 2022, to inform the Company about the unlawful applications.

- 20) That the actions described in paragraph eighteen constitute at least 700 knowing and willful violations.
- 21) That the Company expressly waives:
- A. Notice of or opportunity for hearing;
  - B. Any and all further procedural steps before the Board; and
  - C. The making of any further findings of fact before the Board.
- 22) That this Agreement shall not become effective unless and until the Board accepts it.
- 23) That in consideration for the release by the Board and the OAG of the causes of action which the Board and the OAG have against the Company resulting from the violations referred to in paragraphs fifteen and sixteen, the Company agrees to pay a penalty to the State of Maine in the sum of \$81,880.00, with \$40,940.00 of the penalty suspended provided that the Company does not commit any violations of Federal or State of Maine pesticide law over a five-year period beginning on the effective date of this Agreement. The unsuspended portion of the penalty, \$40,940.00, shall be paid in monthly installments of \$3,412.00. Payments are due on the first of the month starting December 1, 2023, through October 1, 2024. The final payment of \$3,408.00 will be due on November 1, 2024. (Please make checks payable to Treasurer, State of Maine.)
- 24) That in the event the Company fails to make a payment as described in Paragraph 23 of this Agreement, the remaining unsuspended portions and suspended portions of the penalty as described in Paragraph 23 of this Agreement become immediately due and payable.
- 25) That in the event the Company commits any violations of Federal or State of Maine pesticide law—as determined by Board staff in the normal course of compliance investigations—over the five-year period beginning on the effective date of this Agreement, the suspended portion of the penalty becomes immediately due and payable.
- 26) The Board and OAG grant a release of their causes of actions against the Company for the specific violations cited in Paragraph 23 on the express condition that all actions listed in Paragraph 23 of this Agreement are completed in accordance with the express terms and conditions of this Agreement and to the satisfaction of the Board and the OAG. The release shall not become effective until the Company has completed its payment of the unsuspended portion of the penalty pursuant to Paragraph 23 and this Agreement is accepted by the Board.
- 27) Any non-compliance with any term or condition of this Agreement, as determined by the Board and OAG in their sole discretion, voids the release set forth in Paragraph 23 of this Agreement and may lead to an enforcement, suspension/revocation, equitable, and/or civil violation action pursuant to Titles 7 and 22 of the Maine Revised Statutes and/or M.R. Civ. P. 80H.
- 28) Nothing in this Agreement shall be construed to be a relinquishment of the Board's or OAG's powers under Titles 7 and 22 of the Maine Revised Statutes against the Company for any other violations other than those expressly listed in this Agreement.
- 29) This instrument contains the entire agreement between the parties, and no statements, promises, or inducements made by either party or agent of either party that are not contained in this written contract shall be valid or binding; this contract may not be enlarged, modified, or altered except in writing signed by the parties and indorsed on this Agreement.

30) The provisions of this Agreement shall apply to, and be binding on, the parties and their officers, agents, servants, employees, successors, and assigns, and upon those persons in active concert or participation with them who receive actual notice of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement of four pages.

INSIGHT PEST SOLUTIONS, LLC

By:  Date: 11/29/23

Type or Print Name: THOMAS J FLAHERTY IV


BOARD OF PESTICIDES CONTROL

By: \_\_\_\_\_ Date: \_\_\_\_\_  
John Pietroski, Acting Director

APPROVED:

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Carey Gustanski, Assistant Attorney General



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# EPA Takes Action to Protect People from PFAS that Leach from Plastic Containers into Pesticides and Other Products

December 1, 2023

## Contact Information

EPA Press Office ([press@epa.gov](mailto:press@epa.gov))

**WASHINGTON** – Today, the U.S. Environmental Protection Agency (EPA) issued orders <<https://epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/long-chain-pfas-significant-new-use>> to Inhance Technologies LLC (Inhance) directing it not to produce per- and polyfluoroalkyl substances (PFAS), chemicals that are created in the production of its fluorinated high-density polyethylene (HDPE) plastic containers. This action, taken under the authority of the Toxic Substances Control Act (TSCA), will help protect the public from exposure to dangerous PFAS chemicals in containers used for a variety of household consumer, pesticide, fuel, automotive and other industrial products.

“PFAS should not be in the plastic containers people use every day, period,” said

**Assistant Administrator for the Office of Chemical Safety and Pollution Prevention Michal Freedhoff.** “EPA’s action today is one more way we are furthering the Biden-Harris Administration’s Strategic Roadmap to combat PFAS pollution.”

Long-chain PFAS chemicals build up in our bodies and the environment over time. Even small amounts can significantly contribute to people’s long-term exposure and health risk. People may be exposed to these PFAS through their drinking water, fish they eat from PFAS-contaminated waters, and through groundwater that has been contaminated by PFAS. Centers for Disease Control and other data show that nearly 100% of people tested have at least one of seven of the types of PFAS that Inhance manufactures in their blood already. Even without further exposure, it would take more than a decade for PFOA from a single exposure, one of the types of PFAS manufactured by Inhance, to leave people’s bodies.

In 2019, the drinking water used by the town of Easton, Massachusetts, tested positive for PFOA. A local waterbody was later tested and PFAS was found that was traced back to a mosquitocide used by state officials. In September 2020, EPA was made aware of this PFAS contamination in the mosquitocide. EPA scientists then determined that the PFAS found in the mosquitocide came from the fluorinated HDPE plastic container used to store the product, which was manufactured by Inhance. EPA determined that when Inhance fluorinates containers, it manufactures many types of PFAS, including perfluorooctanoic acid (PFOA). EPA announced <<https://epa.gov/newsreleases/epa-releases-testing-data-showing-pfas-contamination-fluorinated-containers>> in March 2021 that these PFAS can migrate into liquid products like pesticides and can continue migrating over time.

In March 2022, EPA issued a Notice of Violation to Inhance for its failure to notify the Agency before it began manufacturing PFAS. Inhance had five years from the proposal of EPA’s long-chain PFAS significant new use rule in 2015 to when it was finalized in 2020 to inform EPA that it was manufacturing long-chain PFAS as part of its process. Following this notice, EPA’s Office of Enforcement and Compliance Assurance (OECA) engaged with Inhance to determine if Inhance had ceased manufacture of the regulated PFAS. Upon determining that Inhance was still manufacturing the regulated PFAS and intended to continue to engage in its fluorination process, OECA referred enforcement to the Department of Justice (DOJ) and DOJ filed suit on behalf of EPA against Inhance in December 2022. Only after these actions did Inhance submit significant new use notices (SNUNs) for the nine PFAS it manufactures to EPA for review on Dec. 30, 2022.

Inhance has historically fluorinated up to 200 million containers annually, which is more containers than there are households in America. The release of 2.2 Kg of these 9 PFAS could cause significant contamination of drinking water supplies leading to risks of adverse health effects in millions of people. For example, EPA recently proposed a Maximum Contaminant Level of 4 parts per trillion for PFOA in drinking water <<https://epa.gov/newsreleases/biden-harris-administration-proposes-first-ever-national-standard-protect-communities>>. Additionally, EPA has also proposed that there is no level of PFOA in drinking water that is without risk of adverse health effects. If 2.2 Kg of PFOA were released to drinking water sources, it would contaminate more than 145 billion gallons of water to levels that would exceed this proposed enforceable level. This corresponds to almost three years' worth of water use in the City of New Orleans.

Upon review of the SNUNs and consistent with the Framework for Addressing New PFAS and New Uses of PFAS <<https://epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/framework-addressing-new-pfas-and>>, EPA has determined that three of the PFAS (PFOA, perfluorononanoic acid (PFNA) and perfluorodecanoic acid (PFDA)) are highly toxic and present unreasonable risks that cannot be prevented other than through prohibition of manufacture. Therefore, under TSCA section 5(f), EPA is prohibiting the continued manufacture of PFOA, PFNA and PFDA that are produced from the fluorination of HDPE. EPA also determined that the remaining six of the nine PFAS chemicals manufactured by Inhance may present an unreasonable risk of injury to health or the environment and, under TSCA section 5(e), is requiring the company to cease manufacture of these chemicals, and to perform additional testing if it intends to restart production. However, Inhance's current fluorination process for plastics produces all nine of the PFAS chemicals subject to these orders simultaneously, including PFOA, PFNA, and PFDA. Thus, the production of the other six PFAS could not restart so long as the fluorination process continues to produce PFOA, PFNA and PFDA. These orders become effective February 28, 2024.

Alternatives to this fluorination process exist that will allow for many sectors to continue to provide products with the necessary protective packaging. Additionally, EPA understands that Inhance is working on changes to its process with a stated goal of eliminating all PFAS production.

As always, EPA will review options for ensuring compliance with the orders, consistent with its enforcement policies, either through further litigation or an appropriate

settlement. EPA also notes that TSCA provides waivers for national defense purposes.

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LAST UPDATED ON DECEMBER 1, 2023



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