



ARSENAL[®] Herbicide

Industrial Vegetation Management

 **BASF**
The Chemical Company

ARSENAL® Herbicide

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Why choosing ARSENAL® makes sense

ARSENAL provides effective burndown and residual control of broadleaf and grass weeds. ARSENAL delivers season-long weed control – reducing the need for costly re-treats, avoiding additional labour costs and minimizing workplace disruption.

ARSENAL:

- Low rate.
 - Reduces the amount of active ingredient entering the environment.
- Controls broadleaves, grasses and brush.
- Burndown & season-long residual control.
- Environmentally safe.

How ARSENAL works

ARSENAL is a non-selective herbicide.

It is rapidly absorbed by treated weeds (1-2 hours) through the leaves and roots. Once inside the plant, ARSENAL blocks an enzyme that is unique to plants. Within a few days, plant growth is stopped by halting the weeds' production of amino acids and proteins. Weeds die after 2-3 weeks. Symptoms and control occur more quickly in young, actively-growing weeds under ideal growing conditions.

Woody species may not show symptoms until the year after application.

What ARSENAL controls

ARSENAL provides burndown and season-long residual control of most annual and perennial broadleaf and grassy weeds.

Annual Broadleaf Weeds Controlled:

- Black medic
- Cinquefoil (rough)
- Fleabane spp.
- Groundsel (common)
- Hemp-nettle*
- Kochia*
- Lamb's-quarters*
- Mustard spp*
- Pigweed spp*
- Pineappleweed
- Ragweed spp
- Russian thistle*
- Stinkweed
- Sow-thistle (annual)*
- Wild buckwheat*

Annual Grass Weeds Controlled:

- Bluegrass (annual)
- Foxtail spp*
- Old witchgrass

Perennial / Biennial (b) Weeds Controlled:

- Bladder campion
- Bull thistle
- Burdock (b)
- Canada thistle*
- Cinquefoil (sulphur)
- Clover spp
- Dandelion
- Dog-strangling vine
- Field bindweed
- Goat's-beard (b)
- Goldenrod
- Leafy spurge
- Milkweed
- Mouse-ear chickweed
- Mullein spp (b)

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- Ox-eye daisy
- Plantain spp
- Poison ivy
- Sheep sorrel
- Toadflax
- Tufted vetch
- Wild carrot (b)
- Wild grape
- Wild strawberry

Perennial Grass / Sedge Weeds

- Bluejoint Reedgrass
- Bromegrass
- Canada bluegrass
- Fescue spp
- Quackgrass
- Yellow nutsedge

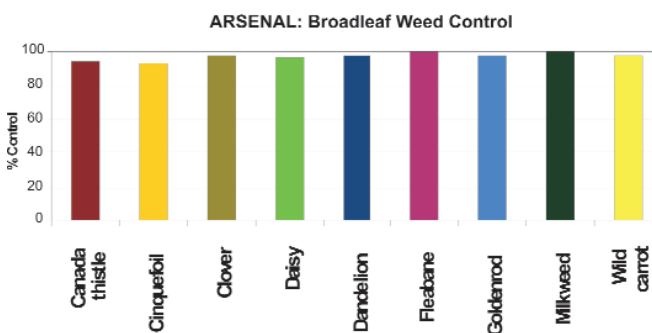
Woody Species

- Aspen
- Maple
- Poplar
- Raspberry
- Wild rose

*Tank-mixing with BANVEL® VM or a glyphosate (registered for use on non-cropland areas) is recommended to control potential Group 2 tolerant biotypes of this weed.

How effective is ARSENAL

15 years of commercial use across Canada has proven ARSENAL's effectiveness in both burndown and residual control of broadleaf, grass and brush weeds.



Source: BASF Canada.

How to use ARSENAL

Do NOT apply ARSENAL to flooded areas, saturated soils or soils that are highly erodible.

Mixing:

1. ½ fill spray tank with water.
2. Add ARSENAL @ 3 L/ha.
- (30 mL/100m² or 1.21 L/acre)
5. Fill remaining portion of spray tank with water.

Water Volume:

High Volume Spray Equipment: 100-550 L/ha

- For best results, apply ARSENAL using the least amount of water practical to obtain uniform coverage on target weeds. Excessive spray volumes which cause runoff from the plant foliage may result in reduced performance.
- Water volumes >550 L/ha: Additional nonionic surfactant must then be added at a rate of 1L / 400L of water to insure performance.

Boom, Manifold and Off-Centre Nozzles:

- Mix the recommended amount of ARSENAL herbicide in 100 - 550 litres per hectare in the spray tank with the agitator running. A foam reducing agent may be added at the recommended label rate if needed.

Low Volume Backpack:

- Backpack, knapsack, and other pump-up type pressure sprayers and backpack mist blowers can be used to direct applications to weed foliage. Do not apply to runoff.

Rainfast: 2 hours.

Buffer Zones:

- 1 m to water¹
- 20 m to terrestrial habitat²
- Right-of-ways, utility easements, roads and hand-held backpack or spot treatments do not require a buffer.

¹Where local restrictions are more prohibitive, follow the most restrictive buffer requirement.

²Buffer zones for protection of terrestrial habitats are not required for use on rights-of-way, including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

BASF-Supported ARSENAL Tank-Mixes

ARSENAL + BANVEL VM @ 2.1–4.6 L/ha:

- Provides post-emergent and residual control of broadleaf weeds, including Group II resistant biotypes.

ARSENAL + Glyphosate (registered for non crop uses) @ 810-4320 g ai/ha:

- Provides two modes of action with a broader-spectrum of post-emergent control of grasses, broadleaf weeds and brush, including Group II resistant biotypes.

ARSENAL + Milestone™:

- Provides 2 modes of action for post-emergent control of many key broadleaf weeds like Canada Fleabane, Scentless Chamomile and thistles.

Environment, health and safety

ARSENAL is an safe product for both applicators and the environment because its mode of action disrupts an essential enzyme found only in plants. ARSENAL does not pose a hazard to animals, or insects, worms, birds or fish, and it binds strongly to soil to resist leaching or lateral movement.

ARSENAL: General Information

Active Ingredient: Imazapyr

Formulation : Aqueous solution

Packaging : 2 x 9.5 L case

Combustibility: Non-combustible

Regulation: Not regulated by TDG or WHMIS

Toxicity: Low (Signal Word: Caution)

User Toxicology

- Human Risk Potential: Negligible
- Oral LD₅₀ > 5000 mg/kg (rat)
- Dermal LC₅₀ > 2000 mg/kg
- Mild eye irritant (Use goggles when mixing)
- Non-mutagenic
- Non-teratogenic
- Non-oncogenic
- Does not bioaccumulate

Ecotoxicity

Birds: Practically Non-Toxic

LD₅₀ > 2000 mg/kg

Fish: Practically Non-Toxic to Slightly Toxic

LC₅₀ > 100 mg/L

Aquatic Insects: Practically Non-Toxic to Slightly Toxic

LC₅₀ > 100 mg/L

For more information as well as technical and sales support for ARSENAL Herbicide, contact your local ENGAGE Agro or TrueNorth Specialty Products representative.

For copies of an ARSENAL Herbicide label or MSDS, visit www.engageagro.com or www.truenorthspecialty.com

Technical Support Provided by **ENGAGE AGRO**

Always read and follow label directions.

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Environmental Fate

Volatility: Non-volatile

Persistence:

- Half-life in water: 1.3 - 2.7 days
- Half-life in soil: Depends on temperature and moisture
 - Broken-down microbially.
 - Low temperatures and dry conditions lengthen persistence.

Movement in soil:

- >90% of active ingredient remains in top 7.5 cm of soil profile, even on coarse soils and high rainfall.
- No active ingredient moves deeper than 15 cm in soil profile.
- No lateral movement.

Buffer Zones

- 1 m to water
- 20 m to terrestrial habitat
 - Buffer zones for protection of terrestrial habitats are not required for use on rights-of-way, including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

Handling Precautions

- READ LABEL BEFORE USING ARSENAL.
- Use goggles, gloves and coveralls when mixing.
- Wash thoroughly after using.
- Launder clothes separately.
- Re-entry after spray has dried.

First Aid

- Eye Contact: Flush with water
- Skin Contact: Wash with soap & water
- Inhalation: Remove to fresh air
- Ingestion: drink water, seek immediate medical attention
- Call 1-800-454-2673 for 24 hour assistance.

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