

Container Label

GROUP

2

HERBICIDE

ARSENAL® PowerLine
Herbicide

FOR CONTROL OF UNDESIRABLE VEGETATION IN NON-CROPLAND SITES,
FORESTRY SITE PREPARATION, LOW VOLUME FOLIAR BRUSH CONTROL AND
CUT STUMP TREATMENT

SOLUTION

COMMERCIAL

ACTIVE INGREDIENT: Imazapyr, present as the isopropylamine salt 240 g/L

REGISTRATION NO. 30203

PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT,
1-800-454-2673**

**CAUTION - EYE IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 0.1 L - 1000 L

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

KEEP OUT OF REACH OF CHILDREN

BASF Canada Inc.
5025 Creebank Road
Building A, 2nd Floor
Mississauga, ON L4W 0B6
1-877-371-2273

ARSENAL is a registered trade-mark of BASF Agrochemical Products B.V., used under license by
BASF Canada Inc.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

Potential skin sensitizer. Avoid contact with skin, eyes or clothing.

May irritate the eyes. Avoid contact with eyes.

Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit.

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

Avoid breathing spray and mist.

Use with adequate ventilation.

Do not contaminate any water body or apply to any area not specified on the label.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing and wash separately from household laundry before reuse.

Restricted-Entry Interval (REI): DO NOT enter or allow others to enter treated areas until sprays have dried. For Forestry Site Preparation: **DO NOT** enter or allow worker entry into treated areas during the REI of 12 hours.

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target aquatic and terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of **ARSENAL PowerLine Herbicide** in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

FIRST AID

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

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre 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 centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

Store this product away from food or feed.

Keep containers closed to avoid spills and contamination.

Store at temperatures above -12°C.

ARSENAL PowerLine Herbicide should not be mixed or stored in unlined steel (except stainless steel) containers or spray tanks.

DISPOSAL

For Recyclable Containers

DO NOT reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, or in the case of a spill or spill clean-up, contact the manufacturer and the provincial regulatory agency.

Returnable Containers

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Returnable-Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

Disposal of Unused, Unwanted Product

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Booklet

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Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

Avoid breathing spray and mist.

Use with adequate ventilation.

Do not contaminate any water body or apply to any area not specified on the label.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing and wash separately from household laundry before reuse.

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TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

Store this product away from food or feed.

Keep containers closed to avoid spills and contamination.

Store at temperatures above -12°C.

ARSENAL PowerLine Herbicide should not be mixed or stored in unlined steel (except stainless steel) containers or spray tanks.

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NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

GENERAL INFORMATION

ARSENAL PowerLine Herbicide is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution for season-long control of most annual and perennial grasses and broadleaf weeds in industrial non-cropland areas, such as railroad, utility plant sites, petroleum tank farms, pumping installations, storage areas, and utility, pipeline and highway rights-of-way, including grazed or hayed areas within these sites. **ARSENAL PowerLine Herbicide** may also be used for foliar control of labeled deciduous brush species, forestry site preparation, as a cut stump treatment for control of brush regrowth, and as a low volume directed spray for control of *Phragmites* (common reed) on non-cropland areas and non-irrigation ditch banks where there is no surface water present.

ARSENAL PowerLine Herbicide must be applied post-emergence to the weeds. For maximum activity, weeds should be small, emerged and growing vigorously at the time of post-emergence applications.

ARSENAL PowerLine Herbicide is readily absorbed through foliage and roots and is translocated rapidly throughout the plant. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into, and kills underground storage organs, which prevents regrowth. Chlorosis and

tissue necrosis may not be apparent in some herbaceous plant species until two weeks after application. Complete kill of herbaceous plants may not occur for several weeks. Deciduous brush species may not show visible symptoms until the year after application when they will fail to produce new leaves.

Aerial application for forestry site preparation is restricted to helicopter only.

For terrestrial uses only. DO NOT apply directly to water or to areas where surface water is present.

DO NOT apply **ARSENAL PowerLine Herbicide** to ditches used for irrigation.

DO NOT use on food crops.

Grazing and haying restrictions: There is no grazing restriction following **ARSENAL PowerLine Herbicide** application. DO NOT cut forage for hay for 7 days after **ARSENAL PowerLine Herbicide** application.

DO NOT apply where runoff water may flow onto agricultural land as injury to crops may result. Keep from contact with fertilizers, insecticides, fungicides and seeds.

Injury or loss of desirable trees or shrubs may result if **ARSENAL PowerLine Herbicide** is applied on areas where their roots 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. Prevent drift of spray to desirable plants.

Thoroughly clean all traces of **ARSENAL PowerLine Herbicide** from application equipment immediately after use. Flush tank, pump, hoses and boom with several changes of water after removing nozzle tips and screens (clean these parts separately). Drain and flush equipment away from desirable trees and plants. Do not contaminate water when disposing of equipment wash waters.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Spray Drift Management

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the weed canopy or ground.

Aerial application

Apply by rotary wing (helicopter) aircraft only. **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 14 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the rotorspan.

For application to rights-of-way, spray buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified spray buffer zones for protection of sensitive aquatic habitats.

Spray Buffer Zones

A spray buffer zone is NOT required for uses with hand-held application equipment permitted on this label.

The spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, rangelands, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Use	Spray Buffer zone (metres) required for the protection of:		
		Aquatic Habitat		Terrestrial Habitat
		< 1 m	> 1 m	
Field sprayer	Non-crop areas and forestry site preparation	1	1	20*
	Control of <i>Phragmites</i> in non-crop areas at 4.68 L/ha	1	1	30*
Aerial: Rotary-wing (Coarse Spray [ASAE])	Forest and woodlands < 500 ha site preparation	25	1	NR
Aerial: Rotary-wing (Very Coarse Spray [ASAE])	Forest and woodlands < 500 ha site preparation	20	1	NR

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

NR (Not Required): Spray buffer zones for the protection of terrestrial habitats are not required for use in forestry and woodlot management.

When tank mixes are permitted, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

Instructions for Aerial Application

ARSENAL PowerLine Herbicide may be helicopter applied as a broadcast foliar application for regeneration of conifer dominant stands in woodland management areas of less than 500 ha. Aerial application is restricted to helicopter only. **DO NOT** make applications by fixed-wing aircraft. Maintain adequate spray buffer zones. **DO NOT** apply when wind speed is greater than 14 km/h at flying height at the site of application.

Apply **ARSENAL PowerLine Herbicide** at 2.08 L/ha in a minimum of 50 litres of water per hectare. See **Forestry Site Preparation** section of this label for detailed use instructions. Post-emergence applications require the addition of a non-ionic surfactant at a rate of 0.25% v/v or 1% v/v methylated seed oil (MSO), that do not preclude application by air, for optimum performance.

Observe spray drift management recommendations as specified under DIRECTIONS FOR USE.

Apply only by rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Application Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified spray buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelterbelt) or aquatic habitat.

Aerial Application Operator Precautions

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-877-371-BASF (2273) or obtain technical advice from the distributor or your provincial agricultural representative.

Thoroughly clean application and mixing equipment, including landing gear, immediately after use. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part.

1.0 Vegetation Management – Annual and Perennial Broadleaf and Grass Weeds

ARSENAL PowerLine Herbicide will provide season-long control of most annual and perennial grass and broadleaf weeds, as well as some deciduous woody plants, including the following species:

Apply 2.34 to 3.0 L/ha ²			
	Clover spp.	Kochia ¹	
	Dandelion	Mustard spp. ¹	
	Foxtail spp. ¹	Wild carrot	
Apply 3.0 L/ha			
	Black medic	Goldenrod	Poplar
	Bladder campion	Groundsel (common)	Quackgrass
	Bluegrass (annual)	Hemp-nettle ¹	Ragweed spp.
	Bromegrass	Lamb's-quarters ¹	Raspberry
	Bull thistle	Leafy spurge	Russian thistle ¹
	Burdock	Maple	Sheep sorrel
	Canada bluegrass	Milkweed	Stinkweed
	Canada thistle ¹	Mouse-ear chickweed	Sow-thistle (annual) ¹
	Cinquefoil (rough)	Mullein spp.	Toadflax
	Cinquefoil (sulfur)	Old witchgrass	Tufted vetch
	Dog-strangling vine	Ox-eye daisy	Wild buckwheat ¹
	Fescue spp.	Pigweed spp. ¹	Wild grape
	Field bindweed	Pineappleweed	Wild rose
	Fleabane spp.	Plantain spp.	Wild strawberry
	Goat's-beard	Poison ivy	Yellow nutsedge
Apply 3.0 to 4.68 L/ha			
	<i>Phragmites</i> (see section 2.0 for use instructions)		

¹ Tank mixing with **BANVEL® VM** herbicide or glyphosate (present as isopropylamine salt, potassium salt, diammonium salt or dimethylamine salt) is recommended to control potential Group 2 resistant biotypes of this weed (see the Tank Mixes section of this label for additional details).

² The higher rate should be used for larger weeds or where heavy or well-established infestations occur.

Application Sites

A post-emergence application of **ARSENAL PowerLine Herbicide** can be used to control most annual and perennial grasses and broadleaf weeds and some brush species on the following non-cropland areas, including grazed or hayed areas within these sites: industrial sites, roadside and railroad ballast; road, rail and hydro rights-of-way; stations associated with pipeline rights-of-way, including well sites, battery stations, and compressor or valve stations; and non-irrigation ditch banks. **ARSENAL PowerLine Herbicide** can also be used in directed applications for selective control of invasive plants in naturalized areas, including provincial or federal lands and parks. **ARSENAL PowerLine Herbicide** can be applied alone or in tank mix with **BANVEL VM** herbicide or glyphosate (present as isopropylamine salt, potassium salt, diammonium salt or dimethylamine salt, and registered for non-cropland uses).

Rate

Apply 2.34 - 3.0 L **ARSENAL PowerLine Herbicide** per hectare depending on target weed. See weed list for weed specific recommendations. Post-emergence applications of **ARSENAL PowerLine Herbicide** require the addition of a non-ionic surfactant at a rate of 0.25% v/v or 1% v/v MSO for optimum performance.

Use instructions for control of *Phragmites* on non-cropland areas and non-irrigation ditch banks are located in section **2.0 Control of *Phragmites* (Common Reed)**.

Tank Mixes

In non-cropland areas, the addition of **BANVEL VM** herbicide or glyphosate (present as isopropylamine salt, potassium salt, diammonium salt or dimethylamine salt registered for use on non-cropland areas) to **ARSENAL PowerLine Herbicide** will provide control of additional weeds, including possible Group 2 resistant biotypes.

For maximum activity, apply tank mixtures when weeds are small and actively growing. Refer to the label of the tank mix partner for further precautions, additional weeds controlled, restrictions and use instructions.

Tank mix partner	Rate per hectare
Glyphosate (present as isopropylamine salt, potassium salt, diammonium salt or dimethylamine salt, and registered for use on non-cropland areas)	810 – 4320 g ae ¹
BANVEL VM herbicide	2.1 – 4.6 L

¹ For control of annual and perennial grass and broadleaf weeds. A rate of 810 - 4320 g ae/ha is equivalent to 1.5 to 8 L/ha of **Roundup Transorb HC Liquid Herbicide** (540 g ae/L) or 1.69 to 9 L/ha of **Vantage Plus Max Herbicide Solution** (480 g ae/L). Other glyphosate formulations may require a rate calculation adjustment according to active ingredient concentration.

Equipment

High volume spray equipment: high pressure handguns and vehicle mounted high volume directed spray equipment

For best results, apply **ARSENAL PowerLine Herbicide** alone or in combination with glyphosate (present as isopropylamine salt, potassium salt, diammonium salt or dimethylamine salt, registered

for use on non-cropland areas) or **BANVEL VM** herbicide using the least amount of water practical to obtain uniform coverage of the vegetation foliage. Using excessive spray volumes which may cause runoff from the plant foliage may result in reduced performance. Apply uniformly with properly calibrated ground equipment in 100 - 550 litres of water per hectare with a spray pressure of 175 kPa - 425 kPa.

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

Boom: conventional boom mounted, manifold mounted, and off-centered nozzles

Mix the recommended amount of **ARSENAL PowerLine Herbicide** alone or in combination with glyphosate (present as isopropylamine salt, potassium salt, diammonium salt or dimethylamine salt, registered for use on non-cropland areas) or **BANVEL VM** 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 hand held equipment

Backpack, knapsack, and other pump-up type pressure sprayers used to direct applications to weed foliage.

DO NOT apply by air.

2.0 Control of *Phragmites* (Common Reed)

Apply a rate of 3.0 to 4.68 L/ha of **ARSENAL PowerLine Herbicide** in tank mix with either 0.25% v/v non-ionic surfactant or 1% v/v methylated seed oil (MSO) using ground application equipment that will provide good spray coverage of weed foliage. Use the higher labelled rate where heavy or well established infestations of *Phragmites* occur. **ARSENAL PowerLine Herbicide** may be tank mixed with glyphosate provided all recommendations and restrictions for both labels are followed, and provided the glyphosate product is specifically labelled for this weed and use pattern.

Apply as a low volume directed spray to the foliage, not to the soil. Apply to green foliage after full leaf elongation; ensure 100% coverage. If stand has substantial amount of old stem tissue, mow or burn, then treat new re-growth. For optimum results, treat in late summer or early fall when translocates are directed towards the roots of the plants. DO NOT apply if water is present under the canopy. The treatment area must be dry at the time of application.

Due to the dense nature of *Phragmites*, repeat treatments on an annual basis may be necessary to maintain control. Visual control symptoms will be slow to develop. For large monocultures of *Phragmites*, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.

A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of *Phragmites*. Desirable native plant communities will then have a chance to become re-established.

For terrestrial uses only. DO NOT apply directly to water or to areas where surface water is present. **ARSENAL PowerLine Herbicide** is not registered for direct application to bodies of water.

DO NOT apply **ARSENAL PowerLine Herbicide** to ditches used for irrigation.

For control of non-native invasive species only. Not intended for use on native *Phragmites*.

DO NOT apply more than once per year.

DO NOT apply using a hand-wicking/wiping method (i.e., an absorbent glove soaked in the herbicide). Apply using application methods listed under Equipment in Section 1.0.

DO NOT apply by air.

3.0 Low Volume Foliar Brush control

ARSENAL PowerLine Herbicide will provide control of many brush species including the following species:

Aspen	Maple
Birch	Poplar
Fir	Spruce

Application Sites

A post-emergence application of **ARSENAL PowerLine Herbicide** can be used to control brush species on non-crop areas, such as: roadside, rail and utility rights-of-way and pipelines.

Rate

Thoroughly mix 1 to 1.5 L **ARSENAL PowerLine Herbicide** in 100 L water (1 – 1.5% solution). Apply 50 to 200 L of spray solution per hectare. Do not exceed the maximum rate of 3.0 L **ARSENAL PowerLine Herbicide** per hectare. A non-ionic surfactant (0.25% v/v) or MSO (1% v/v) should be added for optimum performance in all post emergent applications.

Best results are achieved when the dilute solution is applied to approximately 70% of the plant, including the crown. Excessive wetting of the foliage is not required. Moisten but do not spray the foliage to runoff. Use of low pressure and a flat fan tip with a spray angle of 40 degree or less will aid in proper deposition to avoid off-target deposition and reduce damage to the surrounding understory vegetation.

DO NOT apply by air.

4.0 Forestry Site Preparation

ARSENAL PowerLine Herbicide can be used as a directed, spot or strip spray application for site preparation prior to planting select conifer seedlings in the Boreal Forest and Acadian Regions. **ARSENAL PowerLine Herbicide** may also be used to control labelled weeds on forest sites when applied as a broadcast treatment (ground and helicopter applied) prior to the planting of labelled conifer species for regeneration of conifer dominant stands. DO NOT make applications by fixed-wing aircraft.

Only apply **ARSENAL PowerLine Herbicide** prior to the planting of the following conifer crop species:

Common Name	Scientific Name
Black spruce	<i>Picea mariana</i>
Jack pine	<i>Pinus banksiana</i>
Larch	<i>Larix spp.</i>
Lodgepole pine	<i>Pinus contorta</i>
Pitch pine	<i>Pinus rigida</i>
Red spruce	<i>Picea rubens</i>
White pine	<i>Pinus strobus</i>
White spruce	<i>Picea glauca</i>

DO NOT plant seedlings of conifers on sites that have been site-prepared with a broadcast application of **Arsenal PowerLine Herbicide** or into the treated zone of spot or strip site preparation applications for at least six (6) months following treatment or injury may occur.

Restricted Entry Interval: **DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Consult local pesticide authorities about use permits which may be required.

Weed Species Controlled

Apply **ARSENAL PowerLine Herbicide** at **2.08 L/ha** for control of the following weed species:

Aspen
Bluejoint reedgrass

Effects of **ARSENAL PowerLine Herbicide** are slow to appear on target plants with maximum effectiveness generally being apparent more than one full growing season after treatment.

Application Instructions

Directed, Spot or Strip Application for Regeneration of Mixedwood Stands

Apply **ARSENAL PowerLine Herbicide** as a directed, spot or strip spray application prior to planting of labelled conifer species for regeneration of mixed conifer and deciduous stands.

When making directed or spot spray applications with low volume handheld application equipment, thoroughly mix 2.5 L of **ARSENAL PowerLine Herbicide** in 100 L of water (2.5% solution). Treat up to one-half (1/2) the total area of the site preparation area by applying spots or strips to create planting sites. Evenly apply 8 mL of mixture per square meter of treated spot.

When making spot or strip applications using ground application equipment, apply 2.08 L of **ARSENAL PowerLine Herbicide** in 75 to 100 L of mixture per treated hectare. Equipment should be configured to treat spots or strips totaling no more than one-half (1/2) of the treatment unit (cut block plantation opening).

A non-ionic surfactant (0.25% v/v) or MSO (1% v/v) should be added for optimum performance in all post emergent applications.

Broadcast Spray Application for Regeneration of Conifer Dominant Stands

Apply **ARSENAL PowerLine Herbicide** as a broadcast application in advance of planting of labelled conifer species for the regeneration of conifer dominant stands. Do not apply as a broadcast application where deciduous species are desired.

When making a broadcast spray application, use the label rate of 2.08 L/ha. Uniformly apply by ground equipment in a minimum water volume of 100 L/ha. For regeneration of conifer dominant stands in woodland management areas of less than 500 ha, **ARSENAL PowerLine Herbicide** may be helicopter applied as a broadcast foliar application in a minimum water volume of 50 L/ha. Aerial application for forestry site preparation is restricted to helicopter only. Ensure thorough coverage of foliage. Consult nozzle manufacturer's recommendation for spray pressures for specific nozzles. For information on spray buffer zones required for the protection of water bodies and terrestrial habitat, please refer to the spray buffer zones specified under DIRECTIONS FOR USE. When applying by helicopter, follow directions under the **Instructions for Aerial Application** section of this label.

Use sufficient water to ensure thorough coverage. Apply post-emergence to the weeds. For maximum activity, weeds should be small, emerged and growing vigorously at the time of post-emergence applications.

Post-emergence applications require the addition of a non-ionic surfactant at a rate of 0.25% v/v or 1% v/v MSO for optimum performance. Ensure the adjuvant does not preclude application by air when applied by helicopter.

5.0 Cut Stump Treatment

ARSENAL PowerLine Herbicide may be used to control undesirable woody vegetation on non-crop areas by applying the **ARSENAL PowerLine Herbicide** solution to the cambium area of freshly cut stump surfaces. Applications should be made to freshly cut stumps in summer and autumn months. **DO NOT** over apply solution causing runoff or pooling.

ARSENAL PowerLine Herbicide applied as a cut stump treatment will control re-growth of the following brush species:

Alder	Dogwood
Ash	Maple
Aspen	Mountain ash
Birch	Oak
Cherry	Poplar
	Willow

Rate and Mixing Instructions

ARSENAL PowerLine Herbicide may be mixed as a dilute solution for cut stump treatment. To prepare a dilute solution, mix 63 to 94 mL of **ARSENAL PowerLine Herbicide** with 1 L of water. A rate in the upper end of the range is recommended for larger diameter stumps. If temperatures are such that freezing of the spray mixture may occur antifreeze (ethylene glycol) may be used to prevent freezing. The use of a non-ionic surfactant at 0.25% v/v may improve uptake through partially callused cambiums.

Application Directions

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

6.0 Tank Mixes

This product may be tank mixed with a fertilizer, a supplement or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions for Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact BASF Canada Inc. at 1-877-371-2273 for information before applying any tank mix that is not specifically recommended on this label.

7.0 Mixing Instructions

1. Ensure the spray tank is clean before use. Follow the clean-out recommendations stated on the label of the product that was previously used.
2. Fill the spray tank one-half full to three-quarters full of water and start agitation.
3. Using a calibrated measuring device, add the required amount of tank mix partner if required.
4. Mix thoroughly.
5. Using a separate calibrated measuring device, add the required amount of **ARSENAL PowerLine Herbicide** to the tank while agitating the spray solution.
6. While the solution remains agitating, add the required amount of non-ionic surfactant.
7. Continue agitation while filling the remainder of the spray tank with water.
8. Clean the spray tank after use.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, **ARSENAL PowerLine Herbicide** is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to **ARSENAL PowerLine Herbicide** and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **ARSENAL PowerLine Herbicide** or other Group 2 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist for any additional pesticide resistance-management and/or integrated weed-management recommendations.

For further information or to report suspected resistance, contact BASF at 1-877-371-2273 or at www.agsolutions.ca.

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