

**Minnesota Department of Natural Resources  
Pesticide Environmental and Social Risk  
Assessment**

**Pesticide Active Ingredient: Aminopyralid**

**Version 1.0**

**2021**

**Environmental Assessment**

<p><b>Pesticide:</b> <b>Aminopyralid</b></p>	<p><b>Hazard Status:</b> Aminopyralid is not considered a highly hazardous pesticide (HHP) per the FSC Pesticides Policy (FSC- POL-30-001 V3-0 EN) and is not listed on the FSC Lists of Highly Hazardous Pesticides (FSC- POL-30-001a EN). However, risks from other FSC hazard groups and toxicity categories were not precluded from this assessment.</p>		
<p><b>Specific Formulations (CAS#):</b></p>	<p><b>Milestone</b> (566191-89-7): aminopyralid – 40.6%, other ingredients – 59.4%  <b>*Opensight</b> (566191-87-5, 74223-64-6): aminopyralid - 62.13%; metsulfuron-methyl – 9.45%; other ingredients – 28.42%                  *Formulation contains another pesticide requiring an ESRA</p>		
<p><b>Exposure Elements</b></p>	<p><b>Minimum list of values</b></p>	<p><b>Description of why/why not a risk</b></p>	<p><b>Mitigation strategies defined to minimize risk<sup>1</sup></b></p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Environmental</b></p>	<p><b>Soil (erosion, degradation, biota, carbon storage)</b></p>	<p><b>Aminopyralid has minimal adverse effects to soil when used according to label instructions in forestry applications, for post-emergent application to target vegetation.</b></p> <p>Aminopyralid is mobile in soils; however, it is recommended not to allow it to enter the soil, ditches, or waterways (1).</p> <p>This chemical is not rapidly biodegradable (1).</p> <p>Aminopyralid appears to be ‘practically nontoxic’ to earthworms (2).</p> <p>The half-life of aminopyralid in soils is 34.5d (2).</p>	<p><b>Follow all pesticide label application instructions. Follow applicable criterion and indicators from the FSC US FM Standard V1.0 (e.g., Criterion 4.3 for worker safety, Criterion 7.3 for worker training, Criterion 6.5 for protecting water resources, and Criteria 8.1 and 8.2 for Monitoring). Applicators or persons supervising application of restricted use pesticides are required to be certified in accordance with EPA regulations and state, territorial and tribal laws. Additional risk mitigation strategies are provided below. Organizations should take reasonable steps to avoiding environmental and social impacts by considering the mitigation strategies provided below, as well as application-, Organization-, or location-specific strategies.</b></p> <p><b>General consideration of exposure variables designed to mitigate risk:</b></p> <ul style="list-style-type: none"> <li>Know and understand the specific pesticide formulation and/or tank mixture, as its</li> </ul>
	<p><b>Water (ground water, surface waters, water supplies)</b></p>	<p><b>Aminopyralid has a low acute or chronic toxicity to fish and aquatic invertebrates. While its label indicates to avoid direct application to areas where surface water is present, this chemical does not pose a high risk if it does enter waterways, nor is it a high risk for groundwater contamination.</b></p> <p>Aminopyralid has low acute and chronic toxicity (practically nontoxic) to mammals, birds, fish, and aquatic invertebrates (3).</p> <p>Aminopyralid was classified by the U.S. EPA as “practically non-toxic to aquatic phase amphibians” (4).</p>	

Environmental		<p>Aminopyralid was found to be slightly toxic to the eastern oyster, algae and aquatic vascular plants, however, these effects occur at magnitudes more concentration than proper use would indicate (2).</p> <p>In water, the primary route of degradation of aminopyralid is photolysis. The photolysis half-life under standard conditions is 0.6 day, indicating rapid degradation in surface water. Groundwater contamination risk is considered low due to its moderate degradation rates and limited motility (2).</p>	<p>unique formulation may provide a different risk characterization.</p> <ul style="list-style-type: none"> <li>• Understand how the mixture of active ingredients affects the pesticides risk profile.</li> <li>• Seek to minimize the frequency, interval, and amount of application.</li> <li>• Use the most efficient and effective method of application by seeking to minimize risk to environmental and social values.</li> <li>• Have appropriate waste management systems in place.</li> </ul> <p><b>Mitigating Risk to the Environment:</b> <i>avoid contact with water resources and minimize application amounts and number of applications.</i></p> <p><i>General and non-target species:</i></p> <ul style="list-style-type: none"> <li>• Aminopyralid could, if spilled in significant quantities greater than treatment levels, have impacts on some aquatic vegetation and invertebrates (2).</li> <li>• Non-target native herbaceous plants could be affected (5).</li> </ul> <p><i>Water (1):</i></p> <ul style="list-style-type: none"> <li>• Do not allow it to enter soil, ditches, or waterways.</li> <li>• Do not apply directly to water, to areas where surface water is present or to intertidal areas</li> </ul>
	<b>Atmosphere (air quality, greenhouse gasses)</b>	<p><b>Minimal indication of adverse effects to atmosphere was found when aminopyralid is used according to label instructions.</b></p> <p>Aminopyralid has low vapor pressures and is thus at low risk of volatilization (2).</p>	
	<b>Non-target species (vegetation, wildlife, bees and other pollinators, pets)</b>	<p><b>Aminopyralid represents minimal risk to most non-target species. There may be some impacts to aquatic vascular plants; however, this is minimal if properly applied.</b></p> <p>“Aminopyralid has been shown to be “practically nontoxic” to birds, fish, honeybees, earthworms and aquatic invertebrates. “Practically nontoxic” is the EPA’s least toxic category. While aminopyralid is slightly toxic to the eastern oyster, algae and aquatic vascular plants, the expected environmental concentration resulting from the use of this material for weed control is orders of magnitude below any level of concern established for these organisms by the EPA” (2).</p>	
	<b>Non-timber forest products (as FSC-STD-01-001 V5-2 FSC Principles and Criteria, criterion 5.1)</b>	<p><b>Minimal indication of adverse effects to non- timber forest products was found when aminopyralid is used according to label instructions in forestry applications.</b></p> <p>Potential for unintentional secondary effects on non-timber forest products) are present but unlikely. Accidental contact with non-target vegetation species could impact habitat quality.</p>	

	High Conservation Values (particularly HCV 1-4)	<p><b>Minimal indication of adverse effects to High Conservation Values was found when aminopyralid is used according to label instructions in forestry applications. Additional considerations are provided, below.</b></p> <p>Unintentional secondary effects on habitat, landscape and ecosystem could occur, such as accidental spill into aquatic system or impact to native vegetation (2).</p>	<p>below the mean high water mark.</p> <ul style="list-style-type: none"> <li>Do not apply when weather conditions favor runoff or drift.</li> <li>Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.</li> <li>Do not contaminate water sources by disposal.</li> <li>Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.</li> </ul>
	Landscape (aesthetics, cumulative impacts)	<p><b>Minimal indication of adverse effects to landscape values was found when aminopyralid is used according to label instructions in forestry applications. Additional considerations are provided, below.</b></p> <p>Some species of native herbaceous plants could be impacted by this herbicide which may result in a decreased landscape aesthetics (5).</p>	
	Ecosystem services (water, soil, carbon sequestration, tourism)	<p><b>Minimal indication of adverse effects to ecosystem services was found when aminopyralid is used according to label instructions in forestry applications. Additional considerations are provided, below.</b></p> <p>Potential for secondary effects on terrestrial or aquatic animals and plants is minimal, including changes in food availability and habitat quality (2).</p>	

<sup>1</sup> Mitigation strategies have been categorized to avoid redundancy

Sources:

- (1) Safety Data Sheet Milestone Herbicide. (2015). Retrieved from: <https://assets.greenbook.net/M79670.pdf>
- (2) Aminopyralid Family of Herbicides. Retrieved from: [https://www.corteva.us/content/dam/dpagco/corteva/na/us/en/products/us-land-management/DF\\_Aminopyralid\\_Family\\_of\\_Herbicides\\_Broch.pdf](https://www.corteva.us/content/dam/dpagco/corteva/na/us/en/products/us-land-management/DF_Aminopyralid_Family_of_Herbicides_Broch.pdf)
- (3) Aminopyralid: a New Herbicide for Pasture Vegetation Management. Robert A. Masters et al. 2005. The ASA-CSSA-SSSA International Annual Meeting. Retrieved from: <https://a-c-s.confex.com/a-c-s/2005am/techprogram/P7003.HTM>
- (4) Aminopyralid- Human Health and Ecological Risk Assessment- Final Report. Patrick R. Durkin. Syracuse Environmental Research Associates, Inc. 2007. Retrieved from: [https://www.fs.fed.us/foresthealth/pesticide/pdfs/062807\\_Aminopyralid.pdf](https://www.fs.fed.us/foresthealth/pesticide/pdfs/062807_Aminopyralid.pdf)
- (5) Milestone Specimen Label. Retrieved from: <https://pesticide.ifas.ufl.edu/courses/pdfs/tsodaapple/milestonelabel.pdf>

**Social Assessment**

<p><b>Pesticide:</b> <b>Aminopyralid</b></p>	<p><b>Hazard Status:</b> Aminopyralid is not considered a highly hazardous pesticide (HHP) per the FSC Pesticides Policy (FSC- POL-30-001 V3-0 EN) and is not listed on the FSC Lists of Highly Hazardous Pesticides (FSC- POL-30-001a EN). However, risks from other FSC hazard groups and toxicity categories were not precluded from this assessment.</p>		
<p><b>Specific Formulations (CAS#):</b></p>	<p><b>Milestone</b> (566191-89-7): aminopyralid – 40.6%, other ingredients – 59.4%  <b>*Opensight</b> (566191-87-5, 74223-64-6): aminopyralid - 62.13%; metsulfuron-methyl – 9.45%; other ingredients – 28.42%            *Formulation contains another pesticide requiring an ESRA</p>		
<p><b>Exposure Elements</b></p>	<p><b>Minimum list of values</b></p>	<p><b>Description of why/why not a risk</b></p>	<p><b>Mitigation strategies defined to minimize risk<sup>1</sup></b></p>
<p style="text-align: center;"><b>Social</b></p>	<p><b>High Conservation Values (especially HCV 5-6)</b></p>	<p><b>Minimal indication of adverse effects to high conservation values was found when aminopyralid is used according to label instructions in forestry applications.</b>             There is little information available on this metric.</p>	<p><b>Follow all pesticide label application instructions. Follow applicable criterion and indicators from the FSC US FM Standard V1.0 (e.g., Criterion 4.3 for worker safety, Criterion 7.3 for worker training, Criterion 6.5 for protecting water resources, and Criteria 8.1 and 8.2 for Monitoring). Applicators or persons supervising application of restricted use pesticides are required to be certified in accordance with EPA regulations and state, territorial and tribal laws. Additional risk mitigation strategies are provided below. Organizations should take reasonable steps to avoiding environmental and social impacts by considering the mitigation strategies provided below as well as application-, Organization-, or location-specific strategies.</b></p> <p><b>General consideration of exposure variables designed to mitigate risk:</b></p> <ul style="list-style-type: none"> <li>Know and understand the specific pesticide formulation, as its unique formulation may provide a different</li> </ul>
	<p><b>Health (fertility, reproductive health, respiratory health, dermatologic, neurological and gastrointestinal problems, cancer and hormonal imbalance)</b></p>	<p><b>Minimal indication of adverse effects to health values was found when aminopyralid is used according to label instructions in forestry applications. Additional considerations are provided below.</b></p> <p>Routes of exposure are ingestion, inhalation, skin contact, eye contact and skin absorption (1).</p> <p>No emergency medical treatment is necessary for ingestion. Rinse eyes or skin after contact for 15-20 minutes. If inhaled, move to fresh air, call emergency services if breathing is affected (1).</p> <p>Classified by the EPA as “not likely to be carcinogenic to humans”, nonmutagenic. No evidence of birth defects or reproductive</p>	

		problems in laboratory animals at concentrated levels. Not anticipated to cause neurotoxic effects, or bioaccumulate in tissues (2).	<p>risk characterization.</p> <ul style="list-style-type: none"> <li>• Understand the mixture of active ingredients.</li> <li>• Seek to minimize the frequency, interval, and amount of application.</li> <li>• Use the most efficient and effective method of application by seeking to minimize risk to environmental and social values.</li> <li>• Have appropriate waste management systems in place.</li> </ul> <p><b>Mitigating Risk to Workers:</b> <i>When applying pesticides, label instructions should be followed.</i></p> <p><i>Follow Label Recommendations (1, 3):</i></p> <ul style="list-style-type: none"> <li>• Avoid contact with anything that has been treated such as soil, plants or water (re-entry interval 12 hours)</li> <li>• Causes moderate eye irritation</li> <li>• Handle and open container in a manner to prevent spillage.</li> <li>• Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or applying cosmetics.</li> <li>• In case of skin contact: Take off contaminated clothing and shoes immediately, was thoroughly and put on clean clothing. Launder separately.</li> <li>• Rinse immediately with plenty of water for at least 15 min. Call poison control or a doctor for treatment</li> </ul>
	<b>Welfare</b>	<p><b>Minimal indication of adverse effects to welfare was found when aminopyralid is used according to label instructions in forestry applications.</b></p> <p>There is little information available on this metric.</p>	
	<b>Food and water</b>	<p><b>Minimal indication of adverse effects to food and water was found when aminopyralid is used according to label instructions. Additional considerations are provided below.</b></p> <p>“In a metabolism study in rats, aminopyralid was excreted unchanged, indicating an absence of uptake or metabolism; in cattle feeding studies, aminopyralid was cleared from the system within three days. Repeated administration of aminopyralid was not associated with bioaccumulation buildup in tissues” (2).</p>	
	<b>Social Infrastructure; (schools and hospitals, recreational infrastructure, infrastructure adjacent to the management unit)</b>	<p><b>Minimal indication of adverse effects to social infrastructure was found when aminopyralid is used according to label instructions in forestry applications.</b></p>	
	<b>Economic viability (agriculture, livestock, tourism)</b>	<p><b>Minimal indication of adverse effects economic viability was found when aminopyralid is used according to label instructions in forestry applications (1,2).</b></p>	

<b>Social</b>		Aminopyralid is often used in agricultural settings to control noxious weeds (3).	<p>advice.</p> <ul style="list-style-type: none"> <li>• In case of eye exposure: hold eye open and rinse slowly and gently with water for 15-20 min. Remove contact lenses if present, after the first 5 min. Continue rinsing and call poison control or a doctor for treatment advice.</li> <li>• In case of ingestion: no emergency medical treatment necessary</li> </ul> <p>For all pesticide applications, Personal Protective Equipment (PPE) should be worn as follows:</p> <ul style="list-style-type: none"> <li>• chemical-resistant gloves,</li> <li>• overalls or long-sleeved shirt and long pants,</li> <li>• shoes/boots plus socks,</li> <li>• eye protection (goggles, or safety glasses with side shields),</li> <li>• an appropriate respirator if called for in applicable Safety Data Sheets.</li> </ul> <p><b>Mitigating Risk to Public Access/Public Welfare:</b> Keep people out of treated area until sprays have dried (3)</p>
	<b>Rights (legal and customary)</b>	<p><b>Minimal indication of adverse effects to rights was found when aminopyralid is used according to label instructions in forestry applications.</b></p> <p>There is little information available on this metric.</p>	
	<b>Others</b>	<p><b>No additional values were identified in this assessment.</b></p>	

<sup>1</sup> Mitigation strategies have been categorized to avoid redundancy

Sources

- (1) Safety Data Sheet Milestone Herbicide. (2015). Retrieved from: <https://assets.greenbook.net/M79670.pdf>
- (2) Aminopyralid Family of Herbicides. Retrieved from: [https://www.corteva.us/content/dam/dpagco/corteva/na/us/en/products/us-land-management/DF\\_Aminopyralid\\_Family\\_of\\_Herbicides\\_Broch.pdf](https://www.corteva.us/content/dam/dpagco/corteva/na/us/en/products/us-land-management/DF_Aminopyralid_Family_of_Herbicides_Broch.pdf)
- (3) Milestone Specimen Label. Retrieved from: <https://pesticide.ifas.ufl.edu/courses/pdfs/tsodaapple/milestonelabel.pdf>