



Department of Environmental Quality
Water Resources Division

**CHEMICALS APPROVED FOR USE UNDER
THE AQUATIC NUISANCE CONTROL GENERAL PERMIT FOR PONDS**

The following list of chemicals is approved for use under the Aquatic Nuisance Control General Permit for Ponds **ANC9720000**, as modified. In order to have authorization to chemically treat waters of the state under the General Permit for Ponds, the permittee must be issued a Certificate of Coverage (COC) by the Michigan Department of Environmental Quality (DEQ). Additional products may be approved in the future, pending registration with the U.S. Environmental Protection Agency and the Michigan Department of Agriculture and Rural Development and satisfactory review by the DEQ.

Category	Active Ingredient	Brand Name : Maximum Application Rate
Algae Control	chelated copper	Airmax Algae Defense, K-Tea, Symmetry NXG: 0.7 gal/acre-foot (planktonic/filamentous algae) 1.7 gal/acre-foot (macroalgae) Algi-Cure and Algimycin PWF: 1.06 gal/acre-foot (planktonic/filamentous algae) 2.13 gal/acre-foot (macroalgae) Captain, Captain XTR, Cutrine-Plus: 0.6 gal/acre-foot (planktonic/filamentous algae) 1.2 gal/acre-foot (macroalgae) Cutrine Plus Granular: 60.0 lbs/acre
	chelated copper (with surfactant)	Citrine Ultra: 0.6 gal/acre-foot (planktonic/filamentous algae) 1.2 gal/acre-foot (macroalgae)
	copper sulfate	All approved products (unless specified below): 2.6 lbs/acre-foot (planktonic/filamentous algae) 4.4 lbs/acre-foot (macroalgae) Alonglife: 0.33 – 5.5 gal/acre-foot Aquatrols, EarthTec: 0.33 gal/acre-foot (planktonic algae) 0.55 gal/acre-foot (filamentous algae/macroalgae) Formula F-30 Algae Control: 2.0 gal/acre-foot SeClear: 6.4 gal/acre foot SeClear G: 18 lbs/acre-foot
	endothall	Hydrothol 191: 2.2 pints/acre-foot Hydrothol Granular: 11.0 lbs/acre-foot
	hydrogen dioxide	GreenClean Liquid 2.0: 2.4 - 24.0 gal/acre-foot
	sodium carbonate peroxyhydrate	GreenClean Granular: 17.0 lbs/acre-foot (maintenance) 170.0 lbs/acre-foot (heavy growth) GreenClean PRO: 10.0 lbs/acre-foot (maintenance) 100.0 lbs/acre-foot (heavy growth) PAK 27, Phycomycin SCP Algaecide and Oxidizer: 100.0 lbs/acre-foot

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Category	Active Ingredient	Brand Name : Maximum Application Rate
Submerged Plant Control	2,4-D – granular	Aquacide: 60.0 lbs/acre-foot Navigate: 56.8 lbs/acre-foot Sculpin G: 65.4 lbs/acre-foot
	2,4-D and triclopyr	Renovate LZR MAX , Renovate Max G: 93.7 lbs/acre-foot
	chelated copper	Copper-EDA, Current, Harpoon, Komeen, Airmax PondWeed Defense: 3.3 gal/acre-foot Nautique ¹ : 3.0 gal/acre-foot Harpoon Granular: 40 - 80 lbs/acre-foot of plant height Komeen Crystal: 7.7 – 15.5 lbs/acre-foot of plant height
	diquat dibromide	Alligare Diquat ^{1,2} , Diquash ^{1,2} , Harvester ^{1,2} , Littora ^{1,2} , Nufarm Diquat ^{1,2} , Reward ^{1,2} , Solera ^{1,2} , Tribune ^{1,2} , Tsunami ^{1,2} , Ultra Pondweed Defense ^{1,2} : 2.0 gal/acre Weedtrine D ^{1,2} : 10.0 gal/acre
	endothall	Aquathol K: 1.9 gal/acre-foot Aquathol Super K Granular: 13.2 lbs/acre-foot Hydrothol 191 (liquid only): 1.0 gal/acre
	flumioxazin	Clipper: 2.1 lbs/acre-foot
	fluridone	SonarOne (see table below for submerged vegetation)
	imazamox	Clearcast ¹ : 69.0 oz/acre-foot
	triclopyr	Navitrol ¹ , Renovate 3 ¹ : 2.3 gal/acre-foot Navitrol DPF, Renovate LZR, Renovate OTF: 67.0 pounds/acre-foot
Floating/ Emergent Plant Control	2,4-D – granular	Aquacide: 22.0 lbs/acre Navigate: 21.0 lbs/acre Sculpin G: 65.4 lbs/acre-foot
	2,4-D and triclopyr	Renovate LZR MAX, Renovate Max G: 93.7 lbs/acre-foot
	diquat dibromide	Alligare Diquat ^{1,2} , Diquash ^{1,2} , Harvester ^{1,2} , Littora ^{1,2} , Nufarm Diquat ^{1,2} , Reward ^{1,2} , Solera ^{1,2} , Tribune ^{1,2} , Tsunami ^{1,2} , Ultra Pondweed Defense ^{1,2} : 2.0 gal/acre Weedtrine D ^{1,2} : 5 gal/acre
	flumioxazin	Clipper: 12.0 ounces/acre
	fluridone	Sonar Genesis (see table below for duckweed and watermeal)
	glyphosate	Accord ¹ , Aquamaster ¹ , Aqua Neat ¹ , AquaPro ¹ , AquaStar ¹ , Glyphos ¹ , Refuge ¹ , Rodeo ¹ , Shoreline Defense ¹ , Shore-Klear ¹ : see product label for target species application rate
	glyphosate (including surfactant)	GlyphoMate 41: 8.5 pints/acre ShoreKlear-Plus: 2.6 gal/acre
	imazamox	Clearcast ¹ : 64.0 oz/acre
	imazapyr	Arsenal ^{1,2} , Habitat ^{1,2} , Polaris AC Complete ^{1,2} , Polaris ^{1,2} : 6.0 pints/acre
	triclopyr	Navitrol ¹ , Renovate 3 ¹ : 8.0 quarts/acre Navitrol DPF, Renovate LZR, Renovate OTF: 67.0 pounds/acre

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Category	Active Ingredient	Brand Name : Maximum Application Rate
Additives ¹	n/a (adjuvants, sink/drift control)	AGRI-DEX: 4.0 pints/acre Cygnel Plus: 2.5 pints/acre-foot (submergent) 1.0 pint/acre (emergent) PolyAn: 1.0 gal/acre-foot PolyAn (emergent): 3-8 oz/100 gal spray solution TopFilm: 1.0 pint/acre
	n/a (water dyes/colorants)	All Approved Dye Products: 0.01 gal/acre-foot (submergent tracer) 0.25 gal/acre-foot (submergent whole pond) 0.33 to 1.0 ounce/gallon concentrate (emergent tracer)

¹ Certain herbicide labels require or strongly recommend the use of additives to aid herbicide uptake, improve effectiveness, and minimize non-target impacts.

² Certification requirements may apply. See the product label.

Table for use of SonarOne in COC-eligible ponds for management of submerged aquatic vegetation

Pond discharge category ¹	Estimated retention time ²	Per treatment ppb	Maximum number of treatments per month	Maximum number of months treated ³	Maximum number of treatments per season	Estimated range of seasonal total ppb with seasonal maximum in parentheses ⁴
Low discharge, high retention	30 days or greater	10 - 15	1	3	3	20 – 40 (45) (e.g., 2 10-ppb or 2 15-ppb + 1 10-ppb)
Medium discharge, medium retention	20 - 29 days	10 - 15	2	3	6	30 – 50 (90) (e.g., 2 15-ppb or 5 10-ppb)
High discharge, low retention	10 – 19 days	10 - 20	2	3	6	40 - 60 (90) (e.g., 2 20-ppb or 6 10-ppb)

¹ For ponds with less than 10-day retention, utilize alternate herbicide management strategy with contact or systemic products that have shorter exposure time requirements.

² Include the assessment of outlet structure and estimates and calculations for water volume, outlet flow, and retention time in treatment records.

³ The total period for SonarOne applications is three months or 90 days. The last SonarOne treatment of a season must occur to a COC pond within three months (or 90 days) following the first application made to the site. For example, if the first application is made May 15, the final application of the season must occur no later than August 13 (90 days).

⁴ The sum of all applications in a waterbody shall not exceed 90 ppb per annual growth cycle.

Table for use of Sonar Genesis in COC ponds for management of duckweed and watermeal

Target floating species	Estimated retention time ¹	Per treatment ppb ²	Maximum number of treatments per month	Maximum number of months treated	Maximum number of treatments per season	Estimated range of seasonal total ppb with seasonal maximum in parentheses ³
Duckweed (<i>Lemna</i> and other similar species)	30 days or greater	15 - 30	1	3	3	30 - 60 (90) (e.g., 2 15-ppb, 2 30-ppb, or 1 30-ppb + 2 15-ppb)
Watermeal (<i>Wolffia</i> spp.)	30 days or greater	30 - 45	1	3	3	60 - 90 (90) (e.g., 2 45-ppb or 3 30-ppb)

¹ For ponds with less than 30-day retention, utilize an alternate herbicide management strategy with shorter exposure time requirements. Include the assessment of outlet structure and estimates and calculations for water volume, outlet flow, and retention time in treatment records.

² Higher rates in range should be used for more difficult treatment conditions, such as dense growth and shallow water. Watermeal is typically treated at the 45 ppb rate.

³ The sum of all applications in a waterbody shall not exceed 90 ppb per annual growth cycle.