

LIGHT-ATTENUATING DYES (COLORANTS)

CHEMICAL FACT SHEET

Formulations

Light-attenuating dyes (colorants) modify the amount of sunlight available to aquatic plants, algae, and cyanobacteria. The dye is added to waterbodies in liquid form, where it acts to block light transmission through the water column, resulting in reduced photosynthetic activity.

There are numerous commercially available dye products on the market. Some dyes may not be registered as a pesticide, but still have pesticidal qualities that have the effect of inhibiting aquatic plants or other organisms. Commercial dye formulations which are currently registered as a pesticide by U.S. EPA and DATCP for aquatic use in Wisconsin include Aquashade®. * Aquashade® was initially registered with the U.S. EPA in the early 1980s, and contains a blend of blue and yellow dyes designed to absorb specific wavelengths of light that are critical to plant photosynthesis.

Aquatic Use and Considerations

Light-attenuating dyes are non-selective and must be applied on a waterbody-wide scale unless curtains or other devices are used to address dilution. The application of dyes can result in reduced photosynthetic rates, decreased plant and algae growth, and in some cases, death and senescence of plants, phytoplankton and filamentous algae.

Light-attenuating dyes are primarily designed for use in small, man-made waterbodies with little to no outflow, such as private ponds or fish farms. Dyes are generally not appropriate for use in larger, natural waterbodies such as lakes. Aquashade® should not be applied to streams, natural bodies of water, or any body of water not under total control of the user.

* Product names are provided solely for your reference and should not be considered exhaustive nor endorsements.

Efficacy of target species control may be dependent on dye composition, color, application rate, water retention time, water depth, and other site-specific factors. For best results, manufacturers often recommend that dyes be applied early in the growing season, prior to plant germination.

Post-Treatment Water Use Restrictions

The Aquashade® label directs users to either allow at least one hour for the product to disperse throughout the waterbody before using water for swimming, irrigation or livestock watering or avoid pouring concentrate within 50 feet of these intake/use areas, allowing dye to self-disperse into them. Aquashade® should not be applied to waters that will be used for human consumption.†

Herbicide Degradation, Persistence and Trace Contaminants

Information on the fate and transport of Aquashade® is limited. The reported half-life is approximately four weeks, and coloration is gradually lost by dilution, photodegradation and biodegradation over time. However, there is a range of variation in this estimate, as specific conditions among waterbodies can vary.

Impacts on Fish and Other Aquatic Organisms

Currently, very little data exist on the toxicological and/or environmental effects of Aquashade®. Acute toxicity studies conducted by the manufacturer found low toxicity to fish (i.e., bluegill & rainbow trout) and

† May vary by formulation, application rate, and/or product. Every product label must be carefully reviewed and followed by the user.

invertebrates (i.e., *Daphnia magna*). No information was found regarding the potential for Aquashade® to bioconcentrate in organisms. Prolonged use of dyes may suppress primary production and disrupt food web interactions. Shoreline non-target plants (e.g., cattails, waterlilies) may suffer contact burn if Aquashade® is accidentally poured on them. Read and follow all label instructions to prevent adverse environmental impacts.

Human Health

Chemical applicators are primarily at risk of adverse health effects. Aquashade® can be harmful if swallowed or absorbed through the skin. It can also cause moderate eye irritation. Wear personal protective equipment and follow label instructions while handling.

For Additional Information

U.S. Environmental Protection Agency (EPA)
Office of Pesticide Programs
[epa.gov/pesticides](https://www.epa.gov/pesticides)

Wisconsin Department of Agriculture, Trade,
and Consumer Protection
datcp.wi.gov/Pages/Programs_Services/ACMOOverview.aspx

Wisconsin Department of Natural Resources
608-266-2621
dnr.wisconsin.gov/topic/lakes/plants

Wisconsin Department of Health Services
dhs.wisconsin.gov

National Pesticide Information Center
1-800-858-7378
npic.orst.edu

