

US EPA ARCHIVE DOCUMENT

100 Pesticide Name

Danto Brom

100.1 Submission Purpose and Pesticide Use

Proposed registration of various cooling tower uses including lagoons for control of bacterial, fungal, and algae slimes in evaporative condensers, heat exchange water towers influent systems such as flow through filters, lagoon etc., industrial water scrubbing systems and brewery pasteurizers.

100.2 Formulation Information

ACTIVE INGREDIENTS:

	<u>Weight Percent</u>
1-bromo-3-chloro-5,5-dimethylhydantoin,	60.0 -----006315
1,3-dichloro-5,5-dimethylhydantoin,	27.4 -----028501
1,3-dichloro-5-ethyl-5-methylhydantoin,	10.6
Inert Ingredients	2.0
Available bromine,	39.2
Available chlorine,	44.4

100.3 Application Methods, Directions, Rates

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with the labeling.

RECIRCULATING COOLING WATER SYSTEMS

DantoBrom™ aids in the control of bacteria, fungal and algal slimes in evaporative condensers, heat exchange water towers, influent systems such as flow through filters, lagoons etc., industrial water scrubbing systems and brewery pasteurizers.

This product may be added to the systems either continuously or intermittently or as needed. The frequency of feeding and duration of the treatment will depend upon the severity of the problem.

BADLY FOULED SYSTEMS must be cleansed before treatment is begun.

FOR CONTROL OF BACTERIA AND FUNGI

INTERMITTENT OR SLUG METHOD

INITIAL DOSE: When the system is noticeably fouled add 0.1 to 1.0 lbs. to 1000 gallons or 12 to 120 parts per million of the water in the system. Repeat until control is achieved.

SUBSEQUENT DOSE: When microbial control is evident add 0.1 to 0.75 pounds to 1000 gallons or 12 to 90 parts per million of water in the system every 3 days or as needed to maintain control.

CONTINUOUS FEED METHOD

INITIAL DOSE: When a system is noticeably fouled, add 0.1 to 1.0 pounds to 1000 gallons or 12 to 120 parts per million of water in the system.

SUBSEQUENT DOSE: Continuously feed to maintain a dosage of 0.1 to 0.75 pound to 1000 gallons or 12 to 90 parts per million of water in the system.

FOR CONTROL OF ALGAE

INTERMITTENT OR SLUG METHOD

INITIAL DOSE: When the system is noticeably fouled add 0.1 to 1.0 pound per 1000 gallons or 12 to 120 parts per million of water in the system. Repeat until control is achieved.

SUBSEQUENT DOSE: When algae control is evident add 0.1 to 0.75 pound to 1000 gal. daily or 12 to 90 parts per million daily or as needed to maintain control.

CONTINUOUS FEED METHOD

INITIAL DOSE: When the system is noticeably fouled add 0.1 to 1.0 pound to 1000 gallons or 12 to 120 parts per million of water in the system. Repeat until control is achieved.

SUBSEQUENT DOSE: Continuously feed to maintain a dosage of 0.1 to 0.75 pound to 1000 gallons of 12 to 90 parts per million of water in the system.

AIRWASHERS

For use only in industrial airwasher systems that maintain effective mist eliminating components.

DantoBrom™ RW controls slime forming bacteria, fungi and algae in industrial airwasher systems. Add DantoBrom™ RW at the rate of 0.1 to 1.0 pounds (12 to 120 ppm) per 1000 gallons of water in the system, depending upon the severity of the contamination.

Control the application by measuring the free chlorine residual in the treated water. There is no need to exceed 1.0 ppm as free chlorine.

Badly fouled systems must be cleaned before treatment is begun.

INTERMITTENT OR SLUG METHOD

INITIAL DOSE: When system is noticeably fouled add to airwasher sump or chill

water sump to insure uniform mixing. Add 0.1 to 1.0 pound to 1000 gallons of 12 to 120 parts per million of water.

SUBSEQUENT DOSE: When microbial control is evident add 0.1 to 0.60 pounds to 1000 gals. or 12 to 72 parts per million of water.

100.4 Target Organisms

Bacteria, fungus and algae

100.5 Precautionary Labeling

Danger

HARMFUL IF SWALLOWED. HIGHLY CORROSIVE. DO NOT TAKE INTERNALLY. Causes eye and skin damage. Irritating to nose and throat. Avoid breathing dust. Use with adequate ventilation. Do not get into eyes, on skin or clothing. Wear rubber gloves, chemical goggles and face shield when handling. Wash thoroughly after handling. Immediately remove contaminated clothing and wash before reuse.

101 Hazard Assessment

101.1 Discussion

Recirculating Cooling Water Systems for the control of bacterial, fungal and algae slimes in evaporative condensers, heat exchange water towers, influent systems such as flow through filters, lagoons etc., industrial water scrubbing systems and brewery pasteurizers.

101.2 Likelihood of Adverse Effects to Nontarget Organisms

Based upon the available data DantoBrom appear to be highly toxic to aquatic organisms. The avian toxicity category has not been established because no avian studies have been submitted for this product. The maximum expected concentration from a single application of 1.0-lb/1000 gallons of water is 120 ppm. There are potential risks associated with the use of this product to aquatic organisms. NPDES permits are required and may mitigate hazards.

101.1 Endangered Species Consideration

DantoBrom poses a potential hazard to aquatic organisms. This product will be released into a sewage system at a concentration of 120 ppm and hopefully it will be detoxified by passing through a sewage treatment plant to safe levels for aquatic organisms prior to entering the aquatic environment. Sewage treatment plants are designed to break down biological matter and not chemicals. EEB realizes in some cases a sewage treatment plant will break down chemicals. However, if the sewage treatment plant does not detoxify DantoBrom to a safe level for aquatic organisms then potential risks do exist for adverse effects to aquatic organisms.

101.4.1 Prior to consideration of registration of the proposed use of DantoBrom, the following minimal studies are required:

- (a) the avian acute oral LD₅₀ for one species of waterfowl (Mallard Duck, preferably) or one species of upland game bird (Bobwhite Quail Ring-necked Pheasant);
- (b) the dietary LC₅₀ for one species of waterfowl (Mallard Duck) and one species of upland game bird (Bobwhite Quail or Ring-necked Pheasant);
- (c) the 96-hour LC₅₀'s for a coldwater species (Rainbow Trout) and a warmwater species (Bluegill Sunfish) of fish;
- (d) the acute 48-hour LC₅₀ for an aquatic invertebrate (Daphnia sp ., preferably).

The above basic studies are required on the technical grade material of 1,3-dichloro-5-ethyl-5-methylhydantoin only.

103 Conclusion

EEB has reviewed the proposed conditional registration of DantoBrom for use in recirculating cooling water systems. EEB is unable to complete an incremental risk assessment (3(c)(7) finding) for these uses because pertinent ecological effects data are lacking. In order to assess the risks associated with these uses, EEB requires the following data:

- (a) the avian acute oral LD₅₀ for one species of waterfowl (Mallard Duck, preferably) or one species of upland game bird (Bobwhite Quail Ring-necked Pheasant);
- (b) the dietary LC₅₀ for one species of waterfowl (Mallard Duck) and one species of upland game bird (Bobwhite Quail or Ring-necked Pheasant);
- (c) the 96-hour LC₅₀'s for a coldwater species (Rainbow Trout) and a warmwater species (Bluegill Sunfish) of fish;

5

- (d) the acute 48-hour LC₅₀ for an aquatic invertebrate (Daphnia sp., preferably).

The above studies are required on the technical grade material of 1,3-dichloro-5-ethyl-5-methylhydantoin.

Further, other data may be required to support this registration. However, EEB can not make this determination until the studies in section 101.4.1 above have been received and reviewed by this office and the available data on file is forwarded for review. Also, a better description of "lagoons, etc." is required. If such uses involve bodies of water likely to feed into lakes, streams, ponds, or rivers. Then further aquatic testing may be required.

Curtis E. Laird 4-13-84

Curtis E. Laird
Aquatic Biologist
Ecological Effects Branch/HED

Norman Cook 4.13.84

Norman Cook
Head, Section #2
Ecological Effects Branch/HED

Clayton Bushong 4/13/84

Clayton Bushong
Chief
Ecological Effects Branch/HED