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006317  
028501

SHAUGHNESSY NO.

REVIEW NO.

EEB BRANCH REVIEW

7-18-84

DATE: IN 4/11/84 OUT 7/11/84

FILE OR REG. NO. 38906-RU

PETITION OR EXP. PERMIT NO. \_\_\_\_\_

DATE OF SUBMISSION 2/23/84

DATE RECEIVED BY HED 4/10/84

RD REQUESTED COMPLETION DATE 7/30/84

EEB ESTIMATED COMPLETION DATE 7/23/84

RD ACTION CODE/TYPE OF REVIEW 115 / New Chemical

TYPE PRODUCT(S): I, D, H, F, N, R, S Microbiocide

DATA ACCESSION NO(S). 252719

PRODUCT MANAGER NO. A. E. Castillo (32)

PRODUCT NAME(S) DantoBrom

COMPANY NAME Glyco Inc.

SUBMISSION PURPOSE Proposed registration of uses in spas,  
swimming pools, recirculating water systems,  
pulp & paper mfg, and in oil recovery systems.

SHAUGHNESSY NO. CHEMICAL & FORMULATION

<u>006315</u>	<u>1-bromo-3-chloro-5,5 dimethylhydantoin,</u>	<u>60.0</u>
<u>028501</u>	<u>1,3-dichloro-5,5-dimethylhydantoin,</u>	<u>27.4</u>
<u>006317</u>	<u>1,3-dichloro-5-ethyl-5-methylhydantoin,</u>	<u>10.6</u>
_____	<u>Inert Ingredients</u>	<u>2.0</u>
_____	<u>Available bromine,</u>	<u>39.2</u>
_____	<u>Available chlorine,</u>	<u>44.4</u>

Pesticide Name: DantoBrom

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

Proposed registration of uses in spas, swimming pools, recirculating water systems, pulp and paper mfg, and in oil recovery systems as a disinfectant, algacide, fungicide, bactericide and/or slimicide.

100.2 Formulation Information

ACTIVE INGREDIENTS:	<u>Weight Percent</u>
1-bromo-3-chloro-5,5 dimethylhydantoin,	60.0
1,3-dichloro-5,5-dimethylhydantoin,	27.4
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

100.3.1 DISINFECTANT FOR SPAS AND HOT TUBS

DIRECTIONS FOR USE:

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

When used as directed DantoBrom S will disinfect spas and hot tubs, and keep the water clean and free of odor.

Before filling or refilling, remove all leaves and other debris. Clean the sides with a non-abrasive, low foaming cleaner, and rinse thoroughly. Repeat each time spa or tub is drained.

Place DantoBrom S briquettes in a suitable feeder. Adjust the feeder in accordance with the manufacturer's instructions to maintain an active bromine level of 2-4 ppm in residential spas, and 3-5 ppm in commercial spas. Determine the bromine level regularly by using a suitable test kit. Maintain the pH of the water at 7.2 to 7.8. Do not allow the pH to fall below 7.2. Do not heat the water above 105°F.

Conserve energy by using heater only when spa or tub is to be used.

Pump and filter should be operated at least three hours per day or for 24 hours per day at low speed level. Maintain filtering efficiency by cleaning or backwashing filter medium frequently and as recommended by the manufacturer, every 60 days, or more frequently if heavily used.

Drain and refill commercial spas every 4 to 8 days. Residential spas and tubs should be drained and refilled every 60 days, or more frequently if heavily used.

Do not mix DantoBrom S in concentrated form with any other chemicals. A violent reaction leading to fire and explosion could result.

#### 100.3.2 Recirculating Cooling Water System

##### 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™ RW aids in the control of bacterial, fungal and algal slime 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 cleaned 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.

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

##### CONTINUOUS FEED 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.

SUBSEQUENT DOSE. Continuously feed to maintain dosage of 0.1 to 0.75 pounds 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 lbs. to 1000 gallons or 12 to 120 parts per million of the water in the system.

SUBSEQUENT DOSE. When algae control is evident add 0.1 to 0.75 pound to 1000 gallons 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 lbs. to 1000 gallons or

12 to 120 parts per million of the water in the system. Repeat until control is achieved.

SUBSEQUENT DOSE. Continuously feed to maintain a dosage of 0.1 to 0.75 pounds to 1000 gallons or 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 or 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.

INITIAL DOSE: When system is noticeably fouled add to air washer sump or chill water sump to insure uniform mixing. Add 0.1 to 1.0 pound to 1000 gallons or 12 to 120 parts per million of water.

SUBSEQUENT DOSE: When the microbial control is evident add 0.1 to 0.6 pounds to 1000 gals. or 12 to 72 parts per million of water.

#### 100.4 Target Organisms

Algae, fungus, bacteria and/or slime.

## 100.5 Precautionary Labeling

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### 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.

#### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. Do not discharge into lakes, streams, ponds or public water unless in accordance with NPDES permit. For guidance contact your Regional Office of the EPA. Do not contaminate water by cleaning of wastes. Apply this pesticide only as specified on this label.

## 100.6 Fish and Wildlife Toxicity

### 100.6.1 Bromochlorodimethylhydantoin (90% technical a.i.) (1-bromo-3-chloro-5,5-dimethylhydantoin)

<u>Species</u>	<u>Review Date</u>	<u>Results</u>	<u>Category</u>
Bobwhite Quail	6-11-84	>2510 mg/kg	Core
Bobwhite Quail	6-12-84	>5620 ppm	Core
Mallard Duck	6-12-84	>5620 ppm	Core
Rainbow Trout	6-14-84	0.66 ppm	Core
Bluegill Sunfish	6-14-84	1.13 ppm	Core
Daphnia Magna	6-15-84	0.80 ppm	Core

### 100.6.2 Dichlorodimethylhydantoin (1,3-dichloro-5,5-dimethylhydantoin 97%)

<u>Species</u>	<u>Review Date</u>	<u>Results</u>	<u>Category</u>
Bobwhite Quail	6-18-84	1715 mg/kg	Core
Bobwhite Quail	6-19-84	>5620 ppm	Core
Mallard Duck	6-18-84	>5602 ppm	Core
Rainbow Trout	6-19-84	0.83 ppm	Core
Bluegill Sunfish	6-19-84	2.3 ppm	Core
Daphnia Magna	6-19-84	0.47 ppm	Core

## 101 Hazard Assessment

### 101.1 Discussion

Spas and hot tubs, recirculating cooling water systems and airwashers for the control of algae, fungus, bacteria, and/or slime.

### 101.2 Likelihood of Adverse Effects to Nontarget Organisms

Based upon the available data DantoBrom is slightly toxic to avian species and highly toxic to both fish and aquatic invertebrates. The recommended application rate will range from 3 to 120 ppm concentration.

Based upon the available data DantoBrom should provide for minimal risks and exposure to nontarget terrestrial wildlife species. There is potential for significant increase in both risks and exposure to aquatic organisms. The minimum application rate of 3 ppm will exceed both fish and aquatic invertebrates LC<sub>50</sub> values (most sensitive fish 4.5 times and daphnia magna 6.38 times). NPDES are required prior to discharge of this product into lakes, ponds, streams, public water supply or wetlands.

### 101.3 Endangered Species Consideration

DantoBrom poses a potential hazard to aquatic organisms using the minimum application rate of 3 ppm. Prior to use of DantoBrom in recirculating cooling water systems, spas and hot tubs and airwashers, the registrant should contact the local Office of Endangered Species (USDI) for guidance.

### 101.4 Adequacy of Toxicity Data

Bromochlorodimethylhydantoin (1-bromo-3-chloro-5,5-dimethylhydantoin 90%):

<u>Species</u>	<u>Review Date</u>	<u>Results</u>	<u>Category</u>
Bobwhite Quail	6-11-84	>2510 mg/kg	Core
Bobwhite Quail	6-12-84	>5620 ppm	Core
Mallard Duck	6-12-84	>5620 ppm	Core
Rainbow Trout	6-14-84	0.66 ppm	Core
Bluegill Sunfish	6-14-84	1.13 ppm	Core
Daphnia Magna	6-15-84	0.87 ppm	Core

101.5 Dichlorodimethylhydantoin(1,3-dichloro-5,5-dimethylhydantoin 97%)

<u>Species</u>	<u>Review Date</u>	<u>Results</u>	<u>Category</u>
Bobwhite Quail	6-18-84	1715 mg/kg	Core
Bobwhite Quail	6-19-84	>5620 ppm	Core
Mallard Duck	6-18-84	>5620 ppm	Core
Rainbow Trout	6-19-84	0.83 ppm	Core
Bluegill Sunfish	6-19-84	2.3 ppm	Core
Daphnia Magna	6-19-84	0.47 ppm	Core

101.6 Adequacy of Labeling

No comments at this time.

102 Classification

None at this time.

103 Conclusions

EEB has reviewed the proposed registration of DantoBrom for use in spas and hot tubs, recirculating cooling water systems and airwashers. EEB is unable to complete full risk assessment 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 LD<sub>50</sub> for one species of waterfowl (mallard duck, preferably) or one species of upland game bird (bobwhite quail or ring-necked pheasant);

(b) the dietary LC<sub>50</sub> for one species of waterfowl (mallard duck) and one species of upland game bird (bobwhite quail or ring-necked pheasant);

(c) the 96-hour LC<sub>50</sub>'s for a coldwater species (rainbow trout) and a warmwater species (bluegill sunfish) of fish;

(d) the acute 48-hour LC<sub>50</sub> for an aquatic invertebrate (Daphnia sp., preferably).

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

If this product is intended for use in offshore drilling sites, then the following data are required on the technical grade material of each active ingredient in the product.

1. The 96-hour LC<sub>50</sub> for a marine or estuarine fish;
2. The 96-hour LC<sub>50</sub> for shrimp; and
3. The 48-hour EC<sub>50</sub> for oyster embryolarvae or 96-hour EC<sub>50</sub> shell deposition study with oyster.

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103.1 Note to PM

Dibromodimethylhydantoin data cannot be substituted  
for DantoBrom data requirements in support of registration.  
For more details see review by C. Laird dated 4-18-84.

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