

U.S. Fish and Wildlife Service
Marquette Biological Station
3090 Wright Street
Marquette, Michigan 49855
U.S.A.

and

U.S. Fish and Wildlife Service
Ludington Biological Station
5050 Commerce Drive
Ludington, Michigan 49431
U.S.A.

and

Fisheries and Oceans Canada
Sea Lamprey Control Centre
1219 Queen Street East
Sault Ste. Marie, Ontario P6A 2E5
Canada

TECHNICAL OPERATING PROCEDURE

PROCEDURE TITLE:

Procedures for the Application of Bayluscide 20% Emulsifiable Concentrate

APPLICABILITY:

Procedures apply to applications of Bayluscide 20% Emulsifiable Concentrate (EC).

PRINCIPLE:

Bayluscide 20% EC is an additive applied with TFM to tributaries of the Great Lakes to reduce the quantity of TFM used.

SAMPLE COLLECTION AND PRESERVATION:

Not applicable

EQUIPMENT REQUIRED:

See: IOP:IOP:005.x ((Peristaltic (Masterflex) Pumps))
TOP:021.x (Procedures for Conducting Liquid Chromatographic Analysis for Bayluscide) and
IOP: 015.x (High Performance Liquid Chromatograph)

POTENTIAL INTERFERENCES:

Bayluscide 20% EC is not applied to streams with pH <7.0 or those with high concentrations of suspended solids, particularly colloidal clay.
Formulation and equipment must not contact water.

Only specific types of tubing are acceptable for delivery of Bayluscide 20% EC (Attachment 1).

SAFETY:

I. Environmental Hazards

When applied according to label directions Bayluscide 20% EC has minimal effect on fish present in treated waters. Bayluscide 20% EC is generally not applied if nontarget organisms are congregated in the application area. Aquatic applications of Bayluscide 20% EC are conducted only by personnel licensed by State and Provincial regulatory agencies as certified pesticide applicators.

II. Personal Safety

Bayluscide 20% EC is a restricted use pesticide. Personal protective equipment should include long-sleeve shirt, apron, chemical resistant gloves, and goggles or face-shield. See additional precautionary statements on pesticide label (Appendix E) and SDS (Appendix F).

DISPOSAL:

Completely empty the container. Triple-rinse the empty containers and make unsuitable for further use. Dispose of empty containers in an approved sanitary landfill or offer for recycling.

REAGENTS:

No reagents required

PROCEDURES:

Bayluscide 20% EC is applied as an additive toxicant with TFM. The maximum amount which may be applied is 2.0% by weight (A.I.) of the concentration (A.I.) of TFM in the stream. Bayluscide 20% EC and TFM are often applied simultaneously, but in certain situations the application of Bayluscide 20% EC is started 1-2 hours prior to TFM application to ensure proper mix and concentration. Bayluscide 20% EC can be applied to streams in two scenarios:

I. Primary application

Bayluscide and TFM are applied simultaneously through separate metering systems (IOP:014.x, IOP:005.x, and IOP:005.xA). Procedures used to apply TFM are outlined in TOP:012.x.

The concentration of Bayluscide active ingredient (niclosamide) is determined and is expressed as a percentage of the concentration of TFM active ingredient or as a concentration in ug/L (parts per billion). Bayluscide is applied in concentrations as great as 1.5% of the concentration of TFM. An application rate (mL/min) is calculated with standardized equations (Appendix J).

The Bayluscide 20% EC and TFM are metered into the stream. A 120-volt AC pump is used to draw the mixture of lampricides and water and spread it across the stream through one or more perforated hoses. Electrical power is provided at remote sites by a 120-volt AC portable generator. Adjustments of application rates are made independently for each lampricide.

The concentrations of active ingredient for both TFM and Bayluscide are monitored downstream of the application (TOP:018.x and TOP:021.x). Adjustments to the application rates are made on the basis of the results of these analyses.

II. Maintenance application

The second method allows the application of Bayluscide 20% EC into an existing lampricide block. This type of application usually is necessary in complex stream systems and in downstream reaches of a system. Treatment generally is limited to a downstream location by logistical concerns; all tributaries cannot receive Bayluscide applications due to limitations on numbers of trained personnel, numbers of pumps, 120 volt AC generators, analytical instruments, and Bayluscide mixing apparatus.

The addition of Bayluscide to a lampricide block increases the toxicity of the block significantly. Bayluscide can be added to an existing lampricide block only if the concentration of TFM in the block is near minimum lethal concentration. Carefully planned timing and concentration is required for all upstream applications to provide a lampricide block of suitable concentration at the Bayluscide application site.

Application pumps and analytical instruments are the same for primary and maintenance applications of Bayluscide (IOP:005.x, IOP:005.xA, and IOP:0015.x). Desired concentrations of Bayluscide are planned on the basis of targeted concentrations of TFM at the application site and the predicted minimum lethal concentration with Bayluscide (Appendix I), but may be changed in response to data from TFM analyses.

REFERENCES:

None

This procedure has been reviewed and approved by the undersigned representatives of the U.S. Fish and Wildlife Service and Fisheries and Oceans Canada.

REVIEWED/APPROVED _____ DATE _____
Field Supervisor (U.S.)

REVIEWED/APPROVED Mike Spores DATE 05 MAR 2020
Program Manager (Canada)