

## Startup Guide

***XtraBrom 111 biocide contains almost twice the bromine of conventional dry chlorine/bromine products.***

XtraBrom 111 biocide is a free-flowing, bromine-based nugget product used for biocontrol of industrial water systems.

**Successful conversion from BCDMH tablets:**

- Expect to experience higher/quicker halogen residuals; therefore, to achieve the same residuals, the feeding time and/or water flow rate through the feeder should be reduced.
- Depending on the size of the tower and the required residual, the feeding program might be changed to compensate for the faster-dissolving XtraBrom 111 biocide. For instance, your continuous BCDMH tablet program may be replaced with an intermittent XtraBrom 111 biocide feed program.

**Conversion factor to use when switching from BCDMH tablet to XtraBrom 111 biocide:**

- Our case studies demonstrate a conversion rate of 1/4 to 1/2 the consumption of BCDMH tablets, when an intermittent-feed application is used.

**Dosage rate for XtraBrom 111 biocide:**

- Residuals should be 0.5 - 5 ppm as available bromine or as needed to maintain control.
- Application of approximately 5 oz (~ 0.3 lbs, - 140 g) of XtraBrom 111 biocide to 10,000 gallons (38,000 L) of water yields a theoretical dose of 4 ppm as available bromine in demand-free water.

**Recommended feeding equipment for XtraBrom 111 biocide:**

- Bromine feeders designed for feeding solid halogen-based biocides are suitable for use with this product.
- The bromine feeder must be properly sized to allow for an accurate and reduced water flow rate compared to that used with BCDMH tablets or briquettes.
- Refer to the installation instructions to ensure that the feeder is installed correctly and that the water flow is correct. Diffusers inside the feeder must be installed correctly to contain the nuggets. All control valves must be in good condition. The feeder should also be equipped with a properly functioning flow meter.
- Small floaters with mesh inserts can be used for continuous application of this product in small systems.

**Feeding of XtraBrom 111 biocide into the system:**

- It is recommended that cooling tower make-up water be used to supply the feeder containing XtraBrom 111 biocide. If this is impractical, recirculating water can be used.
- The product can be fed ahead of a problem area, such as the return header of the cooling tower basin, to maintain tower and heat exchanger cleanliness.
- If it is necessary to discharge into a pressurized line, installation of a back-flow check valve is recommended.

### Monitoring and control of the dose:

- XtraBrom 111 biocide halogen residuals are measured using the standard DPD colorimetric test procedures.
- Continuous analyzers such as Hach CL 17 and ORP probes have been demonstrated to be suitable techniques for monitoring the residuals and controlling the feed.
- If controlling BCDMH using free residual, feed enough XtraBrom 111 biocide to achieve the same free residual as that obtained for BCDMH. Monitor the performance and adjust the feed rate as needed to achieve microbiological control.
- If controlling BCDMH using total residual, feed enough XtraBrom 111 biocide to achieve a measurable free halogen residual. Monitor the total halogen residual and expect the total halogen residual for XtraBrom 111 biocide to be approximately half that of BCDMH. Monitor performance and adjust the feed rate to achieve microbiological control.

### Compatible materials of construction with XtraBrom 111 biocide:

- At use concentration, the product is compatible with commonly used materials of construction in cooling towers.
- Neat XtraBrom 111 biocide is compatible with fiber-reinforced vinyl ester resin, PVC, high density polyethylene, low density polyethylene, polypropylene, Viton®, Teflon®, Kynar®, chlorobutyl rubber, Hypalon®, titanium and Hastelloy® C.

### Incompatible materials of construction with neat XtraBrom 111 biocide:

- Nylon, brass, copper, carbon steel, stainless steel, galvanized steel, aluminum and other common metals
- Use of incompatible materials can promote the exothermic decomposition of this product.

### Handling requirements for XtraBrom 111 biocide:

- This product causes irreversible eye damage and skin burns. Use personal protective equipment as recommended on the MSDS.
- This product is a strong oxidizing agent. Avoid contact with other chemicals, especially reducing agents, acids, ammonia-containing products, organic materials (such as aldehydes and alcohols) and other oxidizing agents (such as calcium hypochlorite). The neat product also is incompatible with some materials of construction. Please refer to the previous section for details.
- Use of incompatible materials can promote the exothermic decomposition of this product.
- When loading the feeder, the use of a suitable funnel is suggested to avoid dusting and spills.
- For specific handling information, refer to the product label and Albemarle Material Safety Data Sheet, which is available upon request.

### Storage requirements for XtraBrom 111 biocide:

- Store in a cool (<120 °F), dry, well-ventilated area away from heat or flame. Keep containers closed when not in use.
- Shelf life is at least two years at normal ambient conditions when properly stored in the original container.

*For further information, please refer to the product label, technical data sheet and the material safety data sheet.*

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