

Cooling water biocide

Chlorine dioxide generation

Product Information

Chlorine dioxide in a tablet

Engelhard cooling water biocide is an easy-to-use tablet delivering chlorine dioxide gas for the control of bacteria, fungi, algae and biofilm growth in cooling tower systems.

One biocide....is all you need

Engelhard cooling water biocide is both a penetrating and non-penetrating biocide. Chlorine dioxide gas can easily control planktonic (free floating) bacteria, but can also penetrate the sessile bacteria containing biofilm layer, causing it to break up and release from the walls of the cooling tower system. The effectiveness of Engelhard cooling water biocide means

only one biocide is needed for your biocide regimen.

Cost-effective dosing levels

For normally maintained systems, the recommended initial dosing level is 150 - 200 grams / 1,000 gallons / week. For systems in dusty / dirty environments, the recommended initial dosing level is 200-250 grams / 1,000 gallons / week. Engelhard cooling water biocide requires no pH adjustment and is effective on iron bacteria. Small amounts effectively treat the cooling tower system, minimizing corrosion.

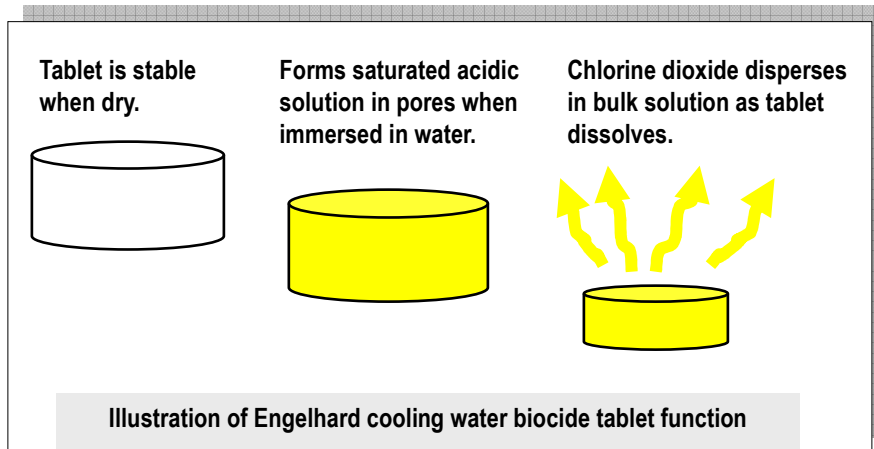
Handling

Chlorine dioxide is considered one of the most powerful biocides in the industry but, until now, limited to on-site generation. Engelhard cooling water biocide supplies the power of chlorine dioxide in a convenient tablet. Thus, small-to-medium sized cooling towers can benefit from this powerful biocide without the usual handling complexities and expense related to gas generation on-site or mixing of liquid chemicals.

About Engelhard

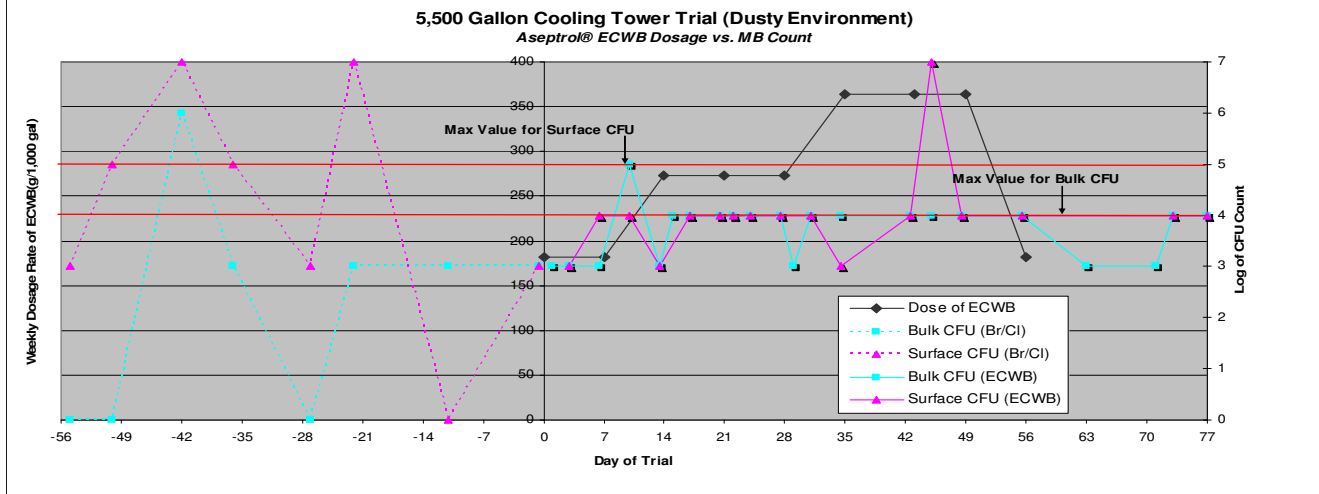
Engelhard Corporation is a surface and materials science company that develops technologies to improve customers' products and processes. A Fortune® 500 company, Engelhard is a world-leading provider of technologies for environmental process, appearance and performance applications.

For more information about Engelhard cooling water biocide or other Engelhard water purification technologies, call us at 732-205-5046 or visit us on the web at www.engelhard.com/watertreatment.



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Engelhard cooling water biocide trial results



Successful trial results with Engelhard cooling water biocide

This trial was conducted over about a 20 week period in a cooling tower situated in a relatively dusty location and which routinely contained a layer of solid sediment several inches thick. Water pH averaged a relatively high 8.4. Dip slide measurements were made of both suspended planktonic (bulk) and sessile (surface) microbes.

The above graph is a plot of surface and waterborne microbial counts as a function of time during the trial. Bromine / chlorine briquettes were used from day -55 thru day 0. At that point, the unit was switched to weekly addition of Engelhard cooling water biocide tablets thru day 56. It also shows the addition rate of Engelhard cooling water biocide (ECWB) during its use.

The figure shows that the tower was under fair control during the baseline period, with four of the seven surface data points being at or above the maximum target of 10^5 cfu / ml and with one of the seven bulk (waterborne) measurements over the maximum target of 10^4 cfu / ml.

Variability of microbe counts was high during this period and was attributed to microbial contamination of the system from organisms growing in the sediment layer (which we believe were not well controlled by the standard oxidizing biocide).

Treatment with Engelhard cooling water biocide begins on day zero (0) and continues thru day 56. The weekly dose rate began at 180 grams / 1000 gallons, was increased to 275 grams / 1000 gallons on day 14 and increased further to 360 grams / 1000 gallons on day 35. The last weekly dose, on day 56, was reduced to 180 grams / 1000 gallons. During this time, the average microbe counts were similar to the baseline period, but there was less variation with Engelhard cooling water biocide as clearly depicted on the graph.

Only one surface reading and one bulk reading out of nineteen of each were above the maximum target levels. The improved consistency is believed to result from better control of organisms in the sediment layer, which reduced the severity of microbe release from the sediment into the water.

In summary, over the Engelhard cooling water biocide trial period, the weekly maintenance dose rate averaged 275 grams / 1000 gallons with resulting chlorine dioxide residuals measured at 30 and 60 minutes of between 0.1 and 0.2 ppm (DPD method using a Hach Pocket Colorimeter II).

This Engelhard cooling water biocide dose rate is about twice that was used during a similar trial, in a much cleaner environment (i.e. minimal dust and sediment). The difference is believed to be due to the sediment layer which provides a protected environment for microbial growth.

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