

T.R. Bio Klean  
Water Treatment  
EFFECT ON WATERWAYS

As relates to the effluent from condensate pans effect on off site water.

While the product label does say not to contaminate water this pertains primarily to "concentrated" amounts of the active biocide in the product. The warnings and instructions on the label are dictated by the Federal EPA which is typically overcautious. This same warning is attached to the concentrated biocide (80% concentration) used to manufacture the product (20% concentration).

Keep in mind that the release characteristics of the product are primarily determined by the amount of water it is exposed to. Therefore, the following is a guideline based on assumed parameters.

The amount of biocide contained in the product constitutes 20% of the total weight. The effectiveness of the biocide is determined by parts per million (ppm). Three ounces of finished product ( size of product used for average 5 ton air conditioner) contains 0.6 ounces ( 17 Grams) of biocide. Maximum release of biocide (minimum life expectancy of product) over 90 days would be roughly 17 grams divided by 90 which results in approximately 0.19 grams of biocide released per day. A five ton air conditioner will generate at least 10 gallons of water per day. One gram of biocide per quart (liter) of water is equal to 1,000 ppm. Therefore, 0.19 grams of biocide in 10 gallons of water is about 4.75 ppm. Consequently, 15 gallons = 3.5 ppm, 20 gallons = 2.37 ppm and so on.

This same quat is approved for use in swimming pools at 2 ppm. Additionally the effectiveness of the biocide is greatly reduced as it performs its function of killing the microorganisms. This in effect can mean the effluent may have no active biocide at all.

The conclusion, in my opinion, is the ppm released while in service is adequate for the intended effect because you are treating finite amounts of water in a contained area but once the effluent is diluted to the ppm outlined above, first by the condensate water and then by outside water, the biocide should no longer affect any living organisms and poses little, if any, detrimental hazard to the environment.

Please feel free to call me if you have any questions.

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