

## BromiCide® for Microbiological Control in Pasteurizers

Ref: V:\Waterfronts\BREW Tib.doc  
December 1999

### Technical Information Bulletin - Pasteurizers

New pasteurizers meet the need for water conservation but provide concentrated nutrients and warmth that foster microbe growth. Uncontrolled, microbial growth in pasteurizers causes many problems including "rotten egg" odors, slime clogged equipment, inefficient heat transfer, worker health concerns, and musty odors or tastes that impact product quality.

Pasteurizers can choose from a variety of products to control unwanted growth. BromiCide offers important advantages in both performance and safety. For your convenience, we present many common problems and the ways in which BromiCide can work to solve the problem.

| Problem                                     | How BromiCide Solves the Problem                                                                                                                                                                                                                                 |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety in normal handling and spills        | Spills are quickly and easily swept up for disposal. Unlike liquid biocides, operators do not directly handle concentrated BromiCide solutions. Dispensing equipment is simple with no moving parts to maintain.                                                 |
| Biocide storage safety & stability problems | BromiCide is a solid that offers stable, safe storage under normal conditions. BromiCide eliminates safety problems of chlorine gas and stability problems of bleach.                                                                                            |
| Slime and "rotten egg" odors                | BromiCide is field proven to effectively control microbial growth increasing pasteurizer production efficiency, improving work environment, and protecting product quality. BromiCide eliminates "rotten egg" odors by converting sulfides to odorless sulfates. |

| Problem                                                                            | How BromiCide Solves the Problem                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Potential product contact with biocide                                             | BromiCide is an EPA registered biocide for brewery pasteurizers, has NSF water certification, and has FDA clearance for food contact paper manufacturing.                                                                                                                                                                       |
| Product and chain lube contaminate water leading to high pH and high nitrogen load | BromiCide's bromine based chemistry is efficient in this environment for 2 reasons. 1) Bromine is more efficient than Chlorine in the high pH typical in pasteurizers. 2) In the presence of organic nitrogen, chlorine forms chloramines and bromine forms bromamines. Bromamines are effective biocides. Chloramines are not. |

| Problem                                 | How BromiCide Solves the Problem                                                                                                                                                                                      |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Strong halogen odor                     | BromiCide's reduced volatility compared to chlorine minimizes odors.                                                                                                                                                  |
| Vapor space corrosion                   | BromiCide's low volatility reduces vapor space corrosion.                                                                                                                                                             |
| Dome staining                           | BromiCide reduces dome staining because it does not lower pH like chlorine gas.                                                                                                                                       |
| Equipment corrosion                     | Low solubility, solid form protects expensive equipment from corrosion due to over dosing that easily occurs when using liquid or gaseous oxidizers.                                                                  |
| Monitoring and control                  | Testing oxidizer level is simple. Equipment ranges from test kits to on-line automated monitoring and control. Non-oxidizing biocide levels cannot be directly measured only inferred from feed rate.                 |
| Scale and corrosion inhibition programs | Chlorine reacts negatively with scale and corrosion inhibition programs limiting their effectiveness. At use levels BromiCide is compatible with most commercially available scale and corrosion inhibition programs. |

### Case History

A Jacksonville brewery<sup>1</sup> had problems with their chlorine gas microbial growth control program. Several overfeeds resulted in damaging equipment corrosion. Operators complained of strong, irritating halogen odors. The brewery used a non-oxidizing holdover biocide, but still had strong "rotten egg" odors after holdover.

The staff wanted a program that did not use gaseous chlorine, minimized chemical hazards, freed operators from direct chemical contact, and still controlled microbial growth. These objectives were achieved using BromiCide to replace both gaseous chlorine and non-oxidizing holdover biocide.

An automated monitoring and control system was used to maintain optimum BromiCide concentration. This system provided cleaner equipment due to better microbial control. Reduced corrosion rates extended the expected equipment service life. Boil out frequency was reduced. Spray nozzles achieved higher flow rates, and routine screen cleanings were reduced. Sump temperature control settings were recalibrated, resulting in energy savings. Furthermore, pasteurizer work environment improved as strong halogen odors were reduced and workers had much less direct contact with biocides.

<sup>1</sup> Larson et. al., "Microbiological Control Using Halogen Donors in a Pasteurizer", MBAA Technical Quarterly, Vol. 30 pp173-178, 1993.