BOTTLE WASHING

Sodium Gluconate

Sodium gluconate is widely used in industrial cleaning formulations across several applications. Gluconate in an alkaline solution is used to clean glass bottles used in the food and beverage industry.

Sodium gluconate is used because of its excellent chelating properties. This makes it desirable in areas where hard water is an issue. Calcium, magnesium and iron deposits can ruin materials due to rust or scale that can build up on equipment such as washer chains, pockets, heating coils, tanks and carrier sections.

As a sequestrant in a caustic bottle washing, gluconate has been found to

- Prevent precipitation of the hardness constituents of water (calcium and magnesium) that cause bottle haze.
- Eliminate rust spots on bottle necks
- Increase the efficiency of aluminum label removal
- Provide free rinsing reducing caustic carry-over
- Lower maintenance cost

Before converting to a caustic-gluconate system, it is advisable to thoroughly descale the equipment using acid to standard industry practice. If scale remains, it will gradually dissolve in the gluconate-caustic solution reducing the concentration in the soaker.

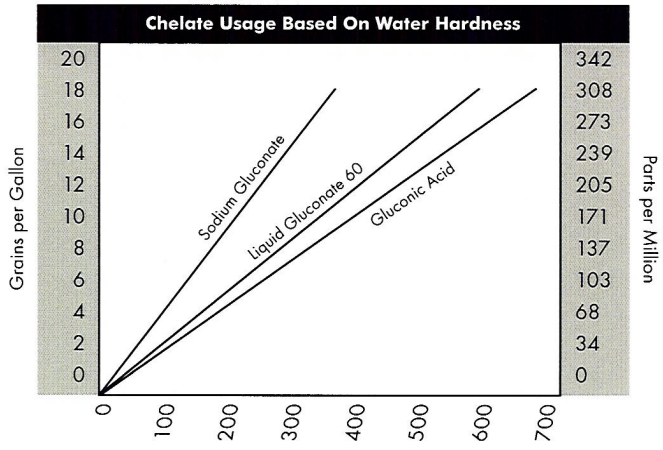
Several factors need to be considered in order to obtain maximum efficiency including type of equipment, temperature, caustic concentration, hours of operation and cleaning amount.

Gluconate sequesters calcium and magnesium on a one to one mole basis in 1 to 5% caustic solutions. Approximately 100 parts gluconate will sequester 20 parts calcium.

Gluconate Sources

Because the gluconate anion is the active sequestrant, it does not matter whether the gluconate is introduced as sodium gluconate crystals, liquid gluconate or gluconic acid. Each product form does have a different use level based on molecular weight. Each pound of sodium gluconate crystal is equivalent to 1.8 lbs gluconic acid or 1.66 lbs liquid gluconate.

The table shows usages based on water hardness and product used.

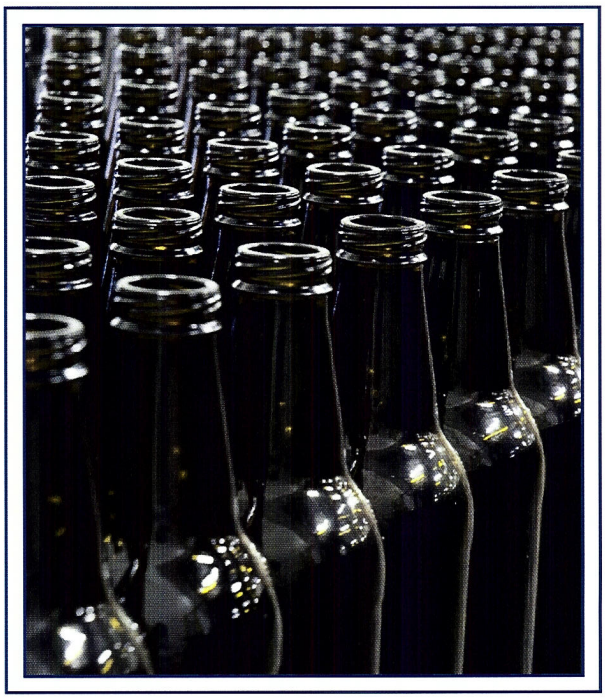


Pounds of product to be mixed into 1,000 gallons of Caustic Soda for dilution to a 4% caustic bottlewash solution.

BOTTLE WASHING

Sodium Gluconate

The levels have been adjusted to provide for variations in water hardness and the presence of a small amount of other minerals, i.e. iron and aluminum frequently found in cleaning baths.



Dilution

While the table shows the pounds of product to be mixed with caustic for dilution as a 4% solution, adjustments can be made to dilute the mixture for a lower percent caustic. Solutions of 1 to 5% are highly effective, but it is critical to remember that the gluconate level must be proportional to the mineral level you wish to sequester. If you decrease the caustic percent, you must increase the gluconate. If 100 lbs gluconate in 4% works, but you want to use 2% caustic, you must use 200 lbs gluconate

Specifications

Sodium gluconate is available is solid or liquid form. Sodium Gluconate FCC comes in both granular and powder form. Liquid Gluconate 60 (LT) is available in drums, totes or bulk. Gluconic Acid 50% is also available in drums or bulk.

PMP Fermentation Products, Inc.
900 NE Adams Street • Peoria, IL 61603 • (309)637-0400
To order, call (800) 558-1031 • Fax: (309) 637-9302
www.pmpinc.com • make inquires to: info@pmpinc.com