

TECHNICAL DATA

BIOPURE™ GLDA

Biopure™ GLDA

INCI: Tetrasodium Glutamate Diacetate

CAS# 51981-21-6

EINECS# 257-573-7



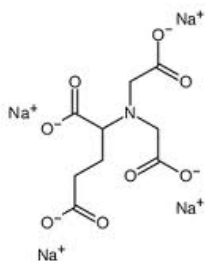
Typical Properties

Appearance	Clear to pale yellow liquid
% Active	46.5 – 47.5
PH (1% solution)	11.0-12.0

Packing: Available in drums, IBCs and bulk. Please refer to the MSDS for handling instructions.

Custom sizes available upon request.

CHEMICAL STRUCTURE



DESCRIPTION

Biopure™ GLDA is a powerful chelating agent made from natural, biodegradable, renewable raw materials. It exhibits excellent metal chelation properties, high water solubility, stability over a wide pH range, and low ecotoxicity. **Biopure™ GLDA** is NTA free and also functions great as a preservative booster.

Biopure™ GLDA bonds with metal ions in the water supply to prevent scale formation. Soils form complexes with metal ions and bond to surfaces. These bonds make cleaning and removing these soil-metal complexes difficult. The strong chelating and dispersion properties of **Biopure™ GLDA** facilitate the removal of metal ions from soils leading to a greatly improved cleaning performance.

Biopure™ GLDA dispersion properties also keep soils suspended in the wash and rinse water, stopping re-deposition of the soil onto cleaned surfaces and insures easy rinsing in applications such as dishwashing. Small quantities of **Biopure™ GLDA** added to formulation can help stabilize the product and prevent discoloration. Larger quantities will enhance cleaning ability and prevent deactivation of active ingredients during use. It also reduces the effect of Ca²⁺ and Mg²⁺ ions resulting in better surfactant performance.

Biopure™ GLDA can replace EDTA 1:1 and can be used in cosmetics and personal care products as well as HI&I products.

APPLICATIONS

- Hard Surface Cleaners
- Laundry Detergents HDL and LDL
- Cosmetic/ Personal Care Products
- Industrial Cleaners
- Fertilizers – Delivery adjuvant for micronutrients for plants
- Shaving Products
- Pulp and Paper Production
- Gas Sweetening
- Wet Wipes
- Polymer Production
- Dishwashing Detergents
- Textiles
- Preservative booster

Effective: January 29, 2019

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Biopure™ GLDA Is the Strongest Readily Biodegradable Chelating Agent

- **Biopure™ GLDA** is bio-based, made from sustainable material and environmentally friendly.
- Ready Biodegradability Closed Bottle Test (OECD 301D) was used to show that the product is readily biodegradable as it almost immediately and increasingly decomposes over 28 days as shown in **Figure 1**.

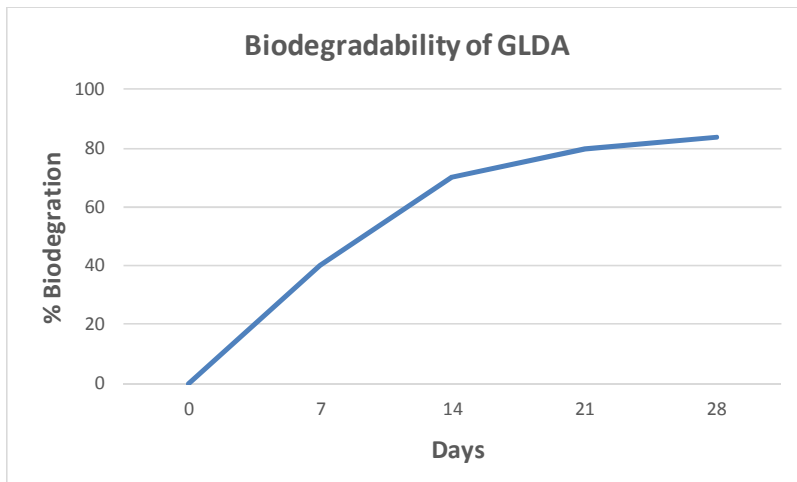


Figure 1:
 Biodegradation of GLDA During Closed Bottle Test (OECD 301D)

Biopure™ GLDA is a 1:1 Replacement for EDTA

- GLDA works as well as EDTA, if not better, as seen in testing for Calcium Sequestration Values at a pH of 11 and 27°C. Calcium Sequestration is the process of binding or confining calcium ions to separate them from other components of a biological system.

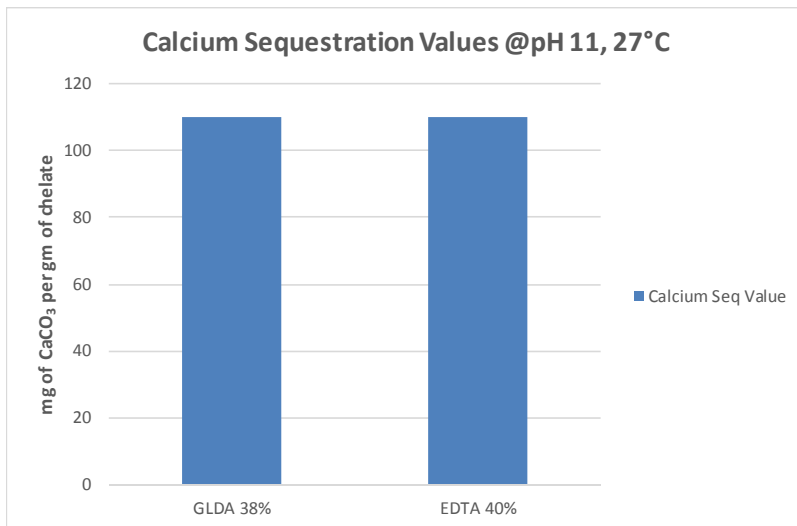


Figure 2: GLDA and EDTA both have high calcium sequestration values.

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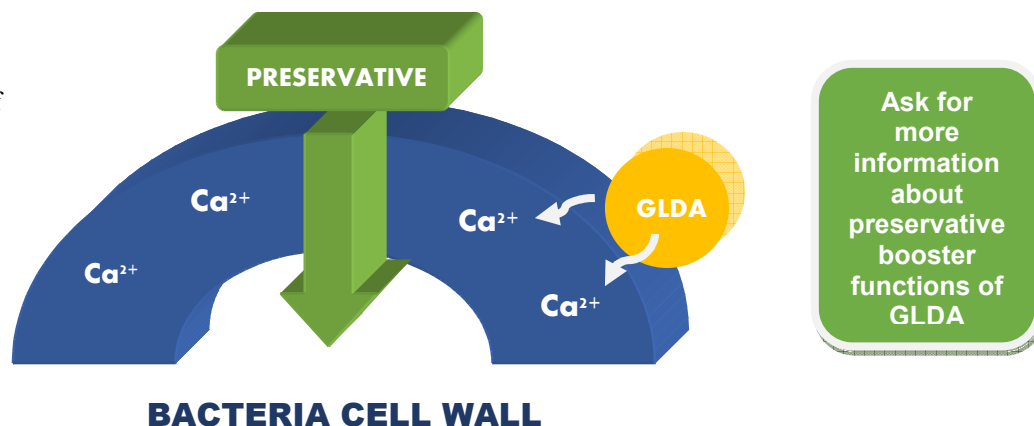
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Biopure™ GLDA Is An Excellent Preservative Booster

- GLDA works just like EDTA to bind to Calcium ions in the cell membranes of bacteria. This binding ability helps preservatives break through and function more efficiently to combat bacteria as seen in **Figure 3**

Figure 3.
 GLDA increases efficacy of preservatives by weakening bacteria cell membranes.



Biopure™ GLDA Is A Safer Alternative to Other Chelating Agents In The Market

- Biopure™ GLDA** is environmentally safer than EDTA, NTA, Phosphates and Phosphonates.
- Biopure™ GLDA** has low toxicity and low ecotoxicity profiles

Health Hazards of Chelates					
Chelate	Eyes	Skin	Inhalation	Ingestion	Requires Hazardous Labeling
GLDA	Not irritating	Not irritating	Not Irritating	Not Irritating	No
EDTA	Causes Irritation (Redness/Pain)	Causes Irritation (Redness/Pain)	Causes Repertory Irritation	Causes irritation + many side effects	Yes
NTA	Causes Serious Irritation	Causes Irritation (Redness/Pain)	Causes Repertory Irritation	Causes irritation + many side effects	Yes

Chelate	Strong Chelate	Readily Biodegradable	Safe for Man and Environment	Bio-Based
GLDA	✓	✓	✓	✓
EDTA	✓	✗	✗	✗
NTA	✓	✓	✗	✗
Phosphates	✓	Inorganic	✗	✗
Phosphonates	✓	✗	✗	✗

January 29, 2019

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JARCHEM INDUSTRIES, INC.
An ISO 9001:2015 Company
 414 Wilson Avenue
 Newark, NJ 07105

Tel# (973) 344-0600
 Fax# (973) 344-5743
 E-Mail: info@jarchem.com
 Website: www.jarchem.com

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BIOPURE™ GLDA

Biopure™ GLDA Has Extremely High Solubility

- GLDA is soluble under a wide range of conditions, from strongly acidic to high caustic conditions.
- Results from testing Biopure™ GLDA showed that it was the strongest chelating agent that remained stable throughout various pH solutions as seen in **Figure 4**.

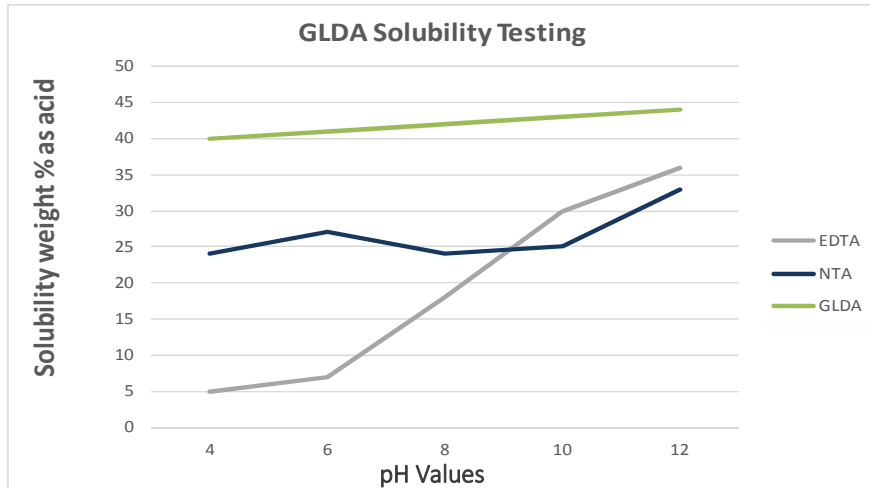


Figure 4: Graph comparing the solubility of GLDA over pH range to EDTA and NTA.

Biopure™ GLDA Benefits Against Corrosion

- Compared to competing chelating agents, **Biopure™ GLDA** performs better and reduces corrosion as shown in **Figures 5&6**.

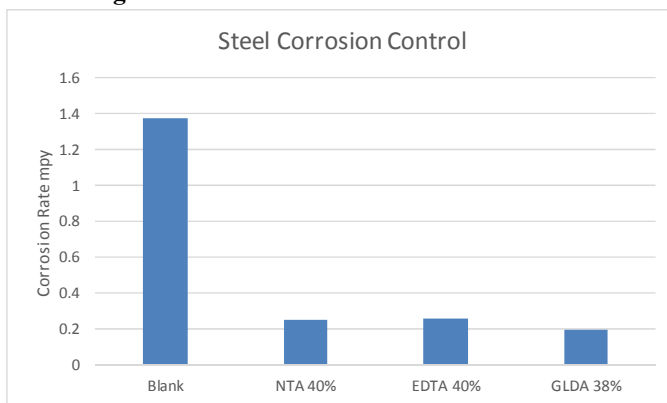


Figure 5: Conditions: Steel corrosion control, 400 ppm product dose, 1.5% NaOH, 150 ppm hardness, room temperature, 24 hours.

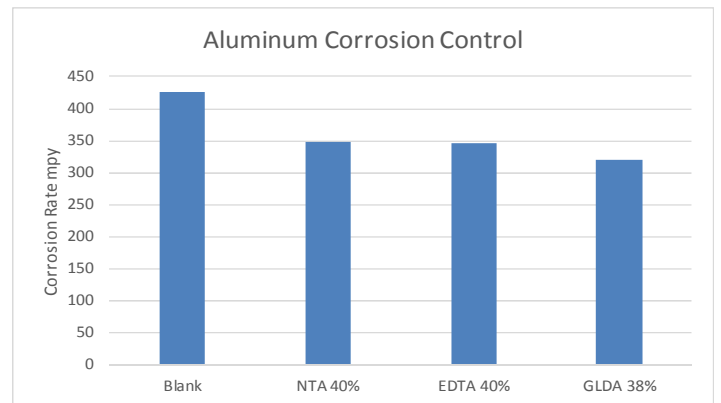


Figure 6: Conditions: Aluminum corrosion control, 200 ppm product dose, 1.5% NaOH, 150 ppm hardness, room temperature, 24 hours.

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