



Technical Data Sheet

VERSENE™ 100 Chelating Agent

Product**Availability**

- North America
- Latin America
- Europe
- India
- Middle East and Africa
- Asia Pacific

Applications

- Agriculture
- Cleaning products
- Metalworking
- Indirect food contact
- Oilfield applications
- Polymerization
- Pulp and paper
- Scale removal and prevention
- Textiles
- Water treatment

Active Ingredient Name

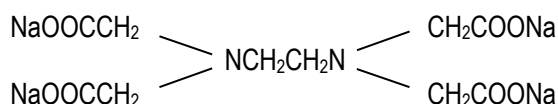
Tetrasodium ethylenediamine tetraacetate

CAS Number

64-02-8

Chemical Formula

$C_{10}H_{12}N_2O_8Na_4$ or
 $(NaOOCCH_2)_2NCH_2CH_2N(CH_2COONa)_2$

Chemical Structure**Molecular Weight**

380.2

Other Names

Na₄EDTA, EDTA

Description

VERSENE™ 100 Chelating Agent is an aqueous solution of the tetrasodium salt of ethylenediaminetetraacetic acid. Na₄EDTA is the strongest, most versatile, and widely used chelant for controlling metal ions over a broad pH range in aqueous systems. It will not chelate monovalent metal ions such as sodium or potassium, but will chelate most multivalent metal ions (e.g., Fe, Cu, Mn, Ca, Mg, Zn) in a 1:1 molar ratio. The chelation reaction is virtually instantaneous in most cases. Calcium and other alkaline earth metals are most effectively chelated above pH 4. Na₄EDTA chelates most transition metals below pH 12. VERSENE 100 is completely miscible with water, but is not soluble in organic systems. Na₄EDTA is stable under widely varying conditions of temperature, acidity, alkalinity, and the presence of other chemicals. Na₄EDTA is attacked, however, by strong oxidizing agents such as hypochlorite bleach. In some applications, Na₄EDTA can be reclaimed for reuse.

Typical Properties†

| | | |
|--------------------------------------|--|-------------------------------|
| Calcium Chelation Value | 102 mg as CaCO ₃ per gram of VERSENE™ 100 | |
| Equivalent Chelation Capacity | One gram of VERSENE 100 Crystals has the equivalent chelation capacity of 1.0 mmoles of EDTA | |
| Metal Chelation Capacity | Parts chelant per part metal (w/w) | |
| Ca | 25 | |
| Mg | 41.2 | |
| Fe | 17.9 | |
| Cu | 15.8 | |
| Mn | 18.2 | |
| % Assay | 39 wt% as Na ₄ EDTA | |
| Appearance | Amber, light | |
| Specific Gravity at 25/25°C | 1.3 | |
| Bulk Density | 1270 kg/m ³ or 10.6 lb./U.S. gal. | |
| pH | 11.0-11.8 (1 wt% solution) | |
| Color | 200 maximum (APHA) | |
| Freezing Point | - 25°C/-13°F | |
| Viscosity, Centistokes | Temperature | Viscosity, Centistokes |
| | 0°C/32°F | 69 |
| | 20°C/68°F | 20 |
| | 40°C/104°F | 8.6 |
| Water Solubility | Completely miscible | |

† The data provided for these properties are typical values, intended only as guides, and should not be construed as sales specifications.

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