

SEQUESTERING AGENT – PART I

REF: TT/ JUNE 2020 / WK 4

Introduction

Sequestering agents or Chelating agents are used to remove water hardness. These agents are organic compounds which form complexes with metal ions like Iron, Copper, Nickel, Zinc and Magnesium ions from the solution, thus preventing the precipitation of soaps. These compounds bind by coordinate bonds with metals and the complex formed is called chelate.

Types of sequestering agents which are commercially available are:

- Amino carboxylic acid based
- Phosphates and Phosphonates
- Hydroxy Carboxylates
- Polyacrylates
- Sugar acrylates

A sequestering agent has two or more coordinating atoms. The most common sequestering agent is EDTA or Ethylene diamine tetra acetic acid

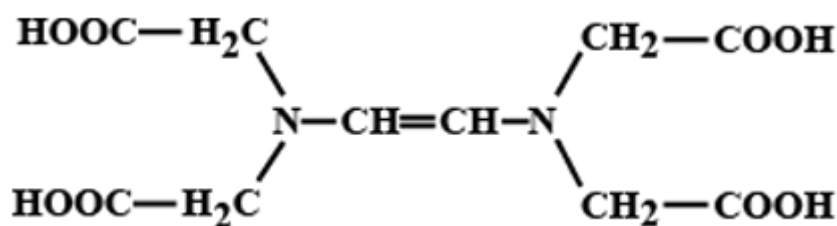


Fig 1.1 EDTA

EDTA forms coordinating bonds with metal ions present in the processing bath forming the metal complexes which stops the metal ions to interfere.

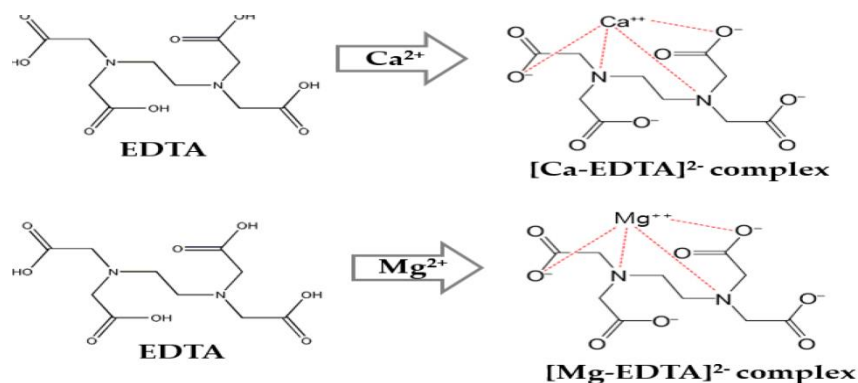


Fig 1.2 EDTA and metal ion reaction

Sources of metal ions in the processing bath

Other than water, metal ions have several other sources too to get into the processing bath. Those are

- Raw Material – These metal ions are present in cotton as impurities and can mixed into the processing bath.
- Chemical auxiliaries - Chemical auxiliaries used in different dyeing processes such as Common salt, Glauber Salt, Soda Ash, Caustic Soda etc.. may contain these metal ions.
- Storing Containers – Dyes and chemicals can get metal contaminated while storing in MS drums.
- Spinning/Weaving – During spinning and weaving processes, rust of the machine part can introduce iron into the substrate.
- Iron contamination – Iron from machine parts.

To be continued.....

Wishing you a great week ahead!

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arc@resil.com | www.resil.com