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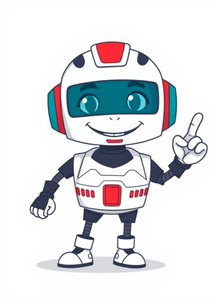

Ethylenediaminetetraacetic acid (EDTA) ist eine aminopolycarbonsure mit der Formel [CH2N(CH2CO2H)2]2 und wird auch als EDTA-Sure bezeichnet. Dieses weie, leicht wasserlsliche Feststoff ist weit verbreitet zum Binden an Eisen (Fe2+/Fe3+) und Kalziumionen (Ca2+), um bei neutraler pH-Wert Wasserlsliche Komplexe zu bilden. Es wird daher verwendet, um Fe- und Ca-fhrende Skalen zu lsen sowie unter Bedingungen aufzuweisen, in denen seine Oxide ungelst sind. EDTA ist in verschiedenen Salzen erhltlich, wie Disodium-EDTA, Natriumkalziumstedate und Tetrasalz-EDTA, die jedoch alle hnliche Funktionen haben. EDTA wird weit verbreitet in der Industrie eingesetzt. Es hat auch Anwendungen in der Lebensmittelindustrie, Medizin, Kosmetik, Wasserweichung, in Laboratorien und anderen Bereichen. EDTA wird hauptschlich verwendet, um Metalionen in wasserhaltigen Lsungen zu befestigen. In der Textilindustrie verhindert es Unreinheiten von Metallionen die Vernderung von Farben von gefrbten Produkten. In der Zellulose- und Papierindustrie hemmt EDTA die Fhigkeit von Metallionen, insbesondere Mn2+, die Disproportionierung von Wasserstoffperoxid zu verhindern, was in chlorinefreien Bleichprozessen verwendet wird. Die wssrige [Fe(EDTA)]-Konzentration wird verwendet, um Wasserstoffswefe aus Gasstrmen zu entfernen. Diese Umwandlung wird durch die Oxidierung des Wassers erreicht.edta use extends beyond laboratory applications as a versatile tool in various industries and medical practicesparaphrased text hereEDTA's metal ions competition with protons for binding results in suppressed catalytic properties due to extensive EDTA wrapping. The anionic nature of EDTA4 complexes makes them highly soluble in water, allowing EDTA to dissolve metal oxides and carbonates. EDTA's pKa values indicate its deprotonation at different pH levels.The widespread use of EDTA raises environmental concerns regarding its persistence. EDTA degradation is slow, mainly occurring abiotically under sunlight. Direct photolysis at wavelengths below 400 nm is the primary process for eliminating EDTA from surface waters, with half-lives ranging from 11.3 minutes to over 100 hours.Several microorganisms can degrade EDTA, including Agrobacterium radiobacter ATCC 55002 and bacterial strains from sewage treatment plants. However, these strains exhibit unique properties and degrade varying metal-EDTA complexes through enzymatic pathways. Candidate chelating agents like nitrilotriacetic acid (NTA), iminodisuccinic acid (IDS), polyaspartic acid, and S,S-ethylenediamine-N,N-disuccinic acid (EDDS) have been investigated for their biodegradability.IDS biodegrades about 80% in 7 days, binds to calcium exceptionally well, and has lower toxicity after chelation. Polyaspartic acid also exhibits strong calcium binding abilities, with practical applications in corrosion inhibitors, wastewater additives, and agricultural polymers. Its structural isomer, ethylenediamine-N,N-disuccinic acid (EDDS), is readily biodegradable.edta has been shown to be effective in removing calcium oxalate from urine of patients with kidney stones. Additionally, unlike edds or ids, mgda can withstand higher temperatures while maintaining a high stability as well as the entire pH range.[citation needed] MGDA has been shown to be an effective chelating agent, with a capacity for mobilization comparable with that of nitrilotriacetic acid (nta), with application to water for industrial use and for the removal of calcium oxalate from urine from patients with kidney stones.[49] The most sensitive method of detecting and measuring edta in biological samples is selected reaction monitoring capillary electrophoresis mass spectrometry (srm-ce/ms), which has a detection limit of 7.3 ng/mL in human plasma and a quantitation limit of 15 ng/mL.[50] This method works with sample volumes as small as 78 nL.[50] edta has also been measured in non-alcoholic beverages using high performance liquid chromatography (hplc) at a level of 2.0 g/mL.[51][52] In the movie blade (1998), edta is used as a weapon to kill vampires, exploding when in contact with vampire blood.[53] Blood on the sock that was used as evidence against o. j. simpson, in the killing of nicole brown simpson and ronald goldman, had high levels of edta, according to defense attorneys.[54]trisodium HEDTA: a chelating agent with diverse applications, its mechanisms and environmental fate are explored in various studies, including those on nuclease activity, enzyme inhibition, and water purification.EDTA Degradation and Biodegradable Chelating Agents: A ReviewBiodegradation of EDTA has been extensively studied, with various microorganisms capable of degrading this compound. Research has shown that pure cultures of Agrobacterium sp can degrade the ferric chelate of EDTA (Lauff et al., 1990). Mixed cultures and a bacterial isolate have also been found to completely degrade EDTA (Nortemannl, 1992; Hennekenl et al., 1995).EDTA degradation is influenced by various physiological conditions, including pH, temperature, and nutrient availability (Hennekenl et al., 1995). The use of biodegradable chelating agents, such as polyaspartic acid and iminodisuccinate, has also been explored as an alternative to traditional EDTA-based methods (Tandy et al., 2004; Cokesa et al., 2004).Disodium SaltEDTA Disodium Salt is a white, crystalline chelating agent utilized in various sectors due to its metal-chelating properties. This salt functions by binding with metal ions such as calcium, magnesium, iron, and lead, creating stable water-soluble complexes that hinder these metals from interfering with chemical processes or product stability.Disodium salt refers to a compound that contains two sodium ions and plays a crucial role in various applications such as food additives, medications, and industrial processes. It comes in different forms depending on the specific compound it is paired with.EDTA disodium salt is one of the most common compounds used in chemistry, particularly in metal ion chelation reactions. This compound has a close chemical relationship with EDTA, but they also have some key differences.The molecular formula of EDTA disodium salt is C10H18N2Na2O10, which makes it more soluble in water compared to EDTA. The chemical structure of EDTA disodium salt consists of two carboxyl groups replaced by sodium ions, increasing its polarity and interaction with water molecules.EDTA disodium salt has several important physical properties, including high solubility in water, stability under various conditions, and strong chelating ability. It can be used as a metal ion chelating agent in industrial production, cosmetics, and as an anticoagulant in blood collection tubes.Despite its similarities with EDTA, EDTA disodium salt has some distinct differences in terms of chemical structure, physical properties, and application fields. Its unique characteristics make it a valuable compound in various industries.EDTA reactivity with other compounds can vary significantly, affecting its suitability for different applications. For instance, EDTA can react with certain oxidants, while the disodium salt form exhibits greater stability. This variability in reactivity is crucial in selecting the appropriate compound for specific needs and conditions.Disodium EDTA is used as a preservative to extend shelf life in the food industry. It inhibits microorganism growth and improves product stability. EDTA is also used in cosmetics and pharmaceuticals to enhance drug absorption and improve efficacy. Additionally, it is used in water treatment to remove metal ions and prevent scale formation.EDTA has been shown to chelate essential minerals like calcium and magnesium, potentially causing nutrient deficiencies. However, Disodium EDTA causes less mineral imbalance due to its lower binding affinity. This difference affects their environmental impact with EDTA being persistent and harder to biodegrade than Disodium EDTA.Manufacturers often prefer Disodium EDTA over EDTA in products as it has higher water solubility and a lower environmental footprint. Both compounds play crucial roles in product preservation, but they have distinct differences in terms of solubility, safety, and environmental impact.

Why disodium salt of edta is used. Edta titrering. Disodium edta vs disodium edta dihydrate. Why is disodium salt of edta preferred to edta. Edta disodium salt dihydrate vs edta. Edta disodium vs edta.