

Chelation Process:

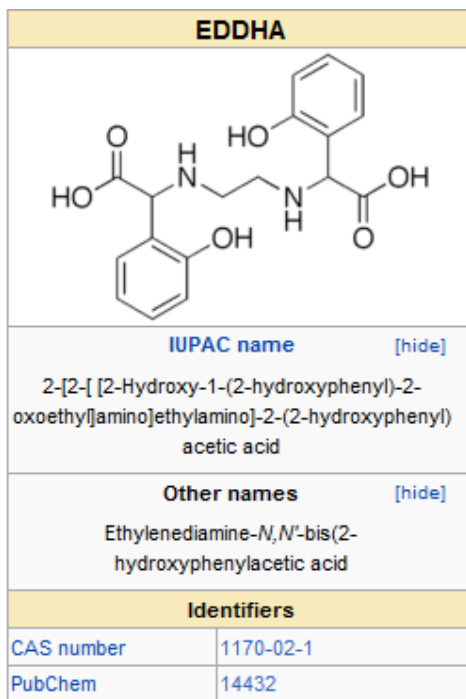
EDDHA or **ethylenediamine-N,N'-bis(2-hydroxyphenylacetic acid)** is an iron-[chelating](#) chemical

SPECIFICATION			
PROPERTY	DTPA	EDTA	NTA
Appearance	White powder	White powder	White to off-white crystalline powder
Assay	99 wt% min as H ₅ DTPA	99 wt% as H ₄ EDTA	98 wt% min as H ₃ NTA
Chelation Value	2.5 mmol/g	3.39 mmol/g	5.2 mmol/g
pH	2.1-2.5 (saturated sol.)	2.5-3.0 (saturated sol.)	1.7-2.7 (1% aqueous sol.)
Water Solubility	0.5 wt% max at 25°C	0.1 wt% max at 25°C	0.15 wt% max at 25°C

SYNONYMS
<p>DTPA : Diethylenetriaminepentaacetic acid; Diethylenetriamine-N,N,N',N',N''-pentaacetic acid; Pentetic acid; N,N-Bis[2-(bis-(carboxymethyl)amino)ethyl]-glycine; Diethylenetriamine pentaacetic acid, [[[Carboxymethyl]imino]bis(ethylenenitrilo)]-tetra-acetic acid</p> <p>EDTA: Edetic acid; Ethylenedinitrilotetraacetic acid; EDTA, free base; EDTA free acid; Ethylenediamine-N,N,N',N'-tetraacetic acid; Hampene; Versene; N,N'-1,2-Ethane diylbis-(N-(carboxymethyl)glycine); ETHYLENEDIAMINE TETRA-ACETIC ACID</p> <p>NTA: N,N-bis(carboxymethyl)glycine; Triglycollamic acid; Trilone A; alpha,alpha',alpha''-trimethylaminetricarboxylic acid; Tri(carboxymethyl)amine; Aminotriacetic acid; Hampshire NTA acid; nitrilo-2,2',2''-triacetic acid; Titriplex i; Nitrilotriacetic acid</p>

CHELATING AGENTS

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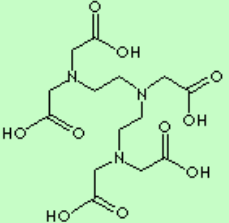
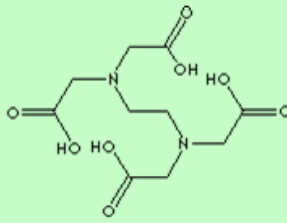
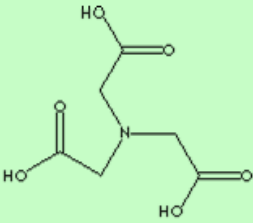
in bacterial [siderophore](#) studies

CHELATING AGENTS

GENERAL

Chelation is a chemical combination with a metal in complexes in which the metal is part of a ring. Organic ligand is called chelator or chelating agent, the chelate is a metal complex. The larger number of ring closures to a metal atom is the more stable the compound. This phenomenon is called the chelate effect; it is generally attributed to an increase in the thermodynamic quantity called entropy that accompanies chelation. The stability of a chelate is also related to the number of atoms in the chelate ring. Monodentate ligands which have one coordinating atom like H_2O or NH_3 are easily broken apart by other chemical processes, whereas polydentate chelators, donating multiple binds to metal ion, provide more stable complexes. Chlorophyll, green plant pigment, is a chelate that consists of a central magnesium atom joined with four complex chelating agent (pyrrole ring). The molecular structure of the chlorophyll is similar to that of the heme bound to proteins to form hemoglobin, except that the latter contains iron(II) ion in the center of the porphyrin. Heme is an iron chelate. Chelation is applied in metal complex chemistry, organic and inorganic chemistry, biochemistry, and environment protection. It is used in chemotherapeutic treatments for metal poisoning. Chelating agents offers a wide range of sequestrants to control metal ions in aqueous systems. By forming stable water soluble complexes with multivalent metal ions, chelating agents prevent undesired interaction by blocking normal reactivity of metal ions. EDTA (ethylenediamine tetraacetate) is a good example of common chelating agent which have nitrogen atoms and short chain carboxylic groups. The sodium salt of EDTA is used as an antidote for metal poisoning, an anticoagulant, and an ingredient in a variety of detergents. Chelating agents are important in the field of soap, detergents, textile dyeing, water softening, metal finishing and plating, pulp and paper, enzyme deactivation, photo chemistry, and bactericides.

PRODUCT IDENTIFICATION

DTPA ACID	EDTA ACID	NTA ACID
		
CAS NO.: 67-43-6 FORMULA: $C_{14}H_{23}N_3O_{10}$ MOL WT.: 393.35	CAS NO.: 60-00-4 FORMULA: $C_{10}H_{16}O_8N$ MOL WT.: 292.25	CAS NO.:139-13-9 FORMULA: $C_6H_9NO_6$ MOL WT.: 191.14

APPLICATIONS

Photography, Detergent, Chemical plating, Electroplating without cyanide, cleaning agent, plastic additives, printing of cotton and chemical fiber, industrial desulfation, inhibitor for plant growth, printing ink, medicine, paper and food industry. Water treatment chemical, Agriculture