



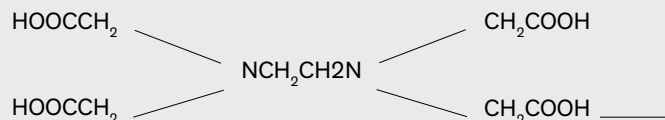
Dow Industrial Solutions, Crop Defense

Dow Chelants for Fertilizer Applications

Metal chelates are important in agriculture because they supply micronutrients (trace metals such as iron, zinc, manganese, and copper) which are vital in the metabolism of both plants and animals.

Plant problems previously ascribed to disease and drought are now recognized as possible symptoms of micronutrient deficiencies. Today these deficiencies are generally considered to be caused by:

- The use of higher analysis fertilizers containing fewer “impurities.” Soils which had been adequately supplied with trace metals from these “impurities” have now become deficient.



VERSENE™ Acid, also referred to as H4EDTA or EDTA Acid, is the acid form of EDTA.

- Intensified cropping practices which place a severe demand on the soil to supply micronutrients; to maintain high yields, supplementary addition of trace metals is now necessary.
- High phosphorous fertilization, which tends to tie up metals in the soil in a form unavailable to the plant.
- The leveling of marginal land for cultivation, which often exposes subsoils deficient in micronutrients.

To aid in correcting micronutrient deficiencies, chelated micronutrients have distinct value when incorporated into liquid fertilizers. Because of their increased solubility, these metal chelates are more readily utilized by the plant than are the inorganic forms of metals. This is especially true in highly competitive ionic systems. As a result, less metal is required in the chelate form.

Dow offers two products which are utilized in this application. **VERSENOL™ AG Fe 4.5%** Chelate, a fully chelated micronutrient, is an aqueous solution of the iron disodium salt of N-(hydroxyethyl)-ethylenediaminetriacetic acid. **VERSENE™ Acid** Chelating Agent is the ethylenediaminetriacetic acid which customers utilize to form solutions of a variety of chelated metals.



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Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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