

Zinc Sulfate vs Competitive Zinc sources

Zinc sources must be at least 40-50% water soluble to be reasonably effective nutrient sources for plants. The following is a comparison of various zinc sources, their % zinc water solubility and how they rank in cost.

<u>Zinc Source</u>	<u>% Zinc</u>	<u>Water Solubility</u>	<u>Cost</u>
Zinc Sulfate	25-35.5%	98%	Low
Zinc Chloride	50%	90%	Low
Zinc EDTA	10%	100%	High
Zinc Lignosulfonate	10-20%	91%	Mid-High
Zinc Oxide	70-80%	0%	Low
Zinc Oxysulfates	25-55%	Variable	Low
Zinc Sucrate	35%	0%	Low

Key Points:

1. Zinc sulfate is 98% water soluble and 35.5% zinc and 17% sulfur which makes it an excellent source of zinc and sulfur.
2. Zinc oxide and zinc sucrate, however, are poor sources of zinc when in granular form because of their low water solubility.
3. Zinc EDTA is a chelate, liquid fertilizer (9%) total zinc and 100 % water soluble.
4. Zinc lignosulfonate is a complexed organic zinc fertilizer which is formed by reacting ZNSO₄ with lignin wastes produced by the paper industry. Most sources contain 10-20% total zinc and 91 % of the total zinc is water soluble.
5. Zinc oxide, in a granular form has low water solubility. Zinc oxide can be more effective in the powdered state, but it is difficult to spread and is easily blown away by wind during application.
6. Zinc chloride has a high solubility and is 50% zinc. However, the excess chlorine can be toxic to some plants.
7. Zinc sulfate provides a 2:1 ratio of zinc: sulfur which provides another significant nutrient to the soil. Sulfur is becoming a needed nutrient because of improved environmental sulfur emissions control. Less sulfur is being collected from the atmosphere
8. Zinc oxide in the granular form has low solubility.