

# PQ® Agricultural Grade Epsom Salt

## *Treating Magnesium Deficiency in Vegetable Plants*

### EPSOM SALT ANALYSIS

Magnesium	9.8%
Sulfur	13.0%

### EFFECTS OF MAGNESIUM DEFICIENCY

- Smaller fruit size
- Sparse crops
- Overall poor quality and flavor

### DIAGNOSING MAGNESIUM DEFICIENCY

While magnesium deficiencies in vegetables are often diagnosed by means of visual symptoms, a technically better method is to utilize foliar analysis. Usually, when a deficiency becomes visible, the plant has already lost growth or yield because it has been deficient for some period of time.

Visual symptoms normally appear in older leaves that show interveinal chlorosis and become brittle. Defoliation is premature. With tomatoes, petioles become etched and tend to hang down the stalk, leaf margins turn up, and stalks are slender. Roots are long with few branches. With broccoli and Brussels sprouts, the older leaves show chlorotic spots between veins and marbling, with tints of orange, red, and purple.

### MAGNESIUM AND ITS ROLE IN VEGETABLE PLANT NUTRITION

Magnesium is one of the essential secondary macronutrients. It occupies a central position in the chlorophyll molecule and, therefore, plays a fundamental role in the photosynthesis process. Without enough magnesium, vegetable plants can experience detrimental changes in chlorophyll content, hindering their ability to carry on photosynthesis.

### AGRICULTURAL BENEFITS

- Improves color and quality
- Increases vitamin formation
- Increases disease resistance
- Improves drought resistance
- Reduces damage from pesticides
- Facilitates the uptake of phosphorus

### APPLICATION ADVANTAGES

- Provides both magnesium and sulfur
- Dissolves rapidly
- Can be incorporated into fertilizer blends
- Suitable for dry application
- Suitable for dilute liquid application,\* such as foliar spray or drip irrigation

PQ agricultural grade epsom salt is available in 50-lb bags.



## PLANT ANALYSIS AND MAGNESIUM THRESHOLD LEVELS

Crop	Sample Size	Part of Plant	Sampling Time	Low % Mg	Sufficient % Mg	High % Mg
<b>Cole Crops</b> (Broccoli, Cabbage)	12	Most recently developed leaf	At heading	0.20 to 0.24	0.25 to 0.75	>0.75
<b>Legumes</b> (Beans, Peas)	20	Most recently developed leaf	First half of first bloom	0.10 to 0.19	0.20 to 0.40	>0.40
<b>Carrots, Celery</b>	25	Most recently developed leaf	When tops 12" high	0.05 to 0.13	0.14 to 0.44	>0.44
<b>Peppers, Tomatoes</b>	20	Most recently developed leaf	Mid-bloom	0.26 to 0.34	0.35 to 1.10	>1.10
<b>Tuber Crops</b> (Potatoes, Sweet Potatoes)	20	Most recently developed leaf	Early bloom	0.10 to 0.19	0.20 to 0.60	>0.60

### TREATMENT RECOMMENDATIONS

Treatment methods vary by soil, geography, and growing cycles. Twenty pounds of PQ® agricultural grade epsom salt per 100 gallons of water can be used as a foliar spray. Five applications at intervals of two to three weeks is recommended.

Apply PQ agricultural grade epsom salt to the soil at rates that bring the magnesium:calcium ratio to



Magnesium-deficient tomato leaves.

Source: APS Press, 1993

between 1:10 and 2:10. For soil-level maintenance, use 25 to 50 pounds of PQ agricultural grade epsom salt per acre. For magnesium-deficient soils, use 150 to 250 pounds of PQ agricultural grade epsom salt per acre.

When mixing PQ agricultural grade epsom salt with liquid fertilizers, conduct a compatibility test to ensure the desired amount of epsom salt will thoroughly dissolve in the liquid fertilizer.

Additional recommendations specific to your region can be obtained from the local Cooperative Extension Office.

*For more information on the use and handling of PQ agricultural grade epsom salt in your application, contact:*



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