Magnesium Citrate Specification Sheet

Product Name: Magnesium Citrate (Food Nutrient Fortifier)

English Name: Magnesium Citrate

CAS No. : 3344-18-1 (Hexahydrate); 144-23-0 (Anhydrous)

Executive Standard: GB 1903.38-2020 National Food Safety Standard - Food Nutrient Fortifier - Magnesium Citrate

Chemical Name: Magnesium Citrate

Molecular Formula: $Mg_3(C_6H_5O_7)_2 \cdot nH_2O$ （n=0, 2, 6）

Relative Molecular Mass:

- Anhydrous: 451.11
- Dihydrate: 487.14
- Hexahydrate: 559.20

1. Sensory Requirements

- Color: White or off-white
- Odor: Odorless
- Character: Crystals or crystalline powder, no visible impurities to the naked eye

2. Physical and Chemical Indexes

Item	Anhydrous / Dihydrate	Hexahydrate
Magnesium Citrate Content (w/%)	-	99.0~103.0
Magnesium (Mg) Content (on dry basis, w/%) ≥	14.5	14.5
Solubility (25℃, g/100mL) ≥	-	5.0
Insoluble Matter in Hydrochloric Acid (w/%) ≤	0.1	0.1
Loss on Drying (w/%) ≤	2.0	29.0
Chloride (as Cl, w/%) ≤	0.05	0.05
Sulfate (as SO_4, w/%) ≤	0.2	0.2
Solution Clarity	Compliant	Compliant
Iron (Fe, mg/kg) ≤	200	200
Lead (Pb, mg/kg) ≤	3.0	3.0
Total Arsenic (As, mg/kg) ≤	3.0	3.0
Cadmium (Cd, mg/kg) ≤	2.0	2.0

3. Microbial Limits

- Total Aerobic Plate Count (CFU/g) ≤1000
- Coliforms (MPN/100g) ≤30
- Molds & Yeasts (CFU/g) ≤100
- Salmonella: 0/25g
- Staphylococcus Aureus: 0/25g

4. Properties and Characteristics

- Appearance: White crystalline powder, odorless and tasteless
- Solubility: Soluble in water (aqueous solution weakly acidic), soluble in dilute acid, slightly soluble in ethanol
- Stability: Stable at room temperature; gradually loses water when heated to 100℃, decomposes above 200℃
- Magnesium Content: 14.5%~16.4% (on dry basis)

5. Application Scope (Used as food nutrient fortifier for magnesium supplementation)

Applicable Food Categories (In accordance with GB 14880-2012):

- Modified milk, modified milk powder, infant formula food
- Dairy products, soybean powder / soymilk powder, cereal products
- Solid beverages, jelly, confectionery, health food, sports nutrition food

6. Recommended Dosage (Calculated as Mg)

- Modified milk: 120~240 mg/kg
- Modified milk powder (for children): 140~800 mg/kg
- Modified milk powder (others): 300~1000 mg/kg
- Soybean powder / soymilk powder: 400~700 mg/kg
- Cereal products: 300~750 mg/kg
- Solid beverages: 500~1250 mg/kg

7. Packaging, Storage and Transportation

- Packaging: Lined with polyethylene bag, outer composite bag / fiber drum, 25kg per bag/drum
- Storage: Store in cool, dry and ventilated place; seal tightly for moisture proof, keep away from heat and light, prevent moisture absorption
- Transportation: Handle with care to avoid damage; prohibited to transport together with toxic, harmful and peculiar smell substances
- Shelf Life: 24 months (under sealed and dry conditions)

Magnesium Citrate Nutritional Facts Table

Product Name: Magnesium Citrate (Food Grade, Hexahydrate)

Consumption Dosage: Added according to product formula (calculated as Mg, complying with the provisions of GB 14880-2012)

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Nutritional Facts (Per 100 g)

Nutritional Component	Content per 100g	Unit	Nutrient Reference Value (NRV%)
Energy	≈115	kcal	5.8%
Carbohydrates	≈62	g	20.7%
Magnesium (Mg)	14.5~16.4	g	3625%~4100%
Protein	0	g	0%
Fat	0	g	0%
Dietary Fiber	0	g	0%
Sodium	0	mg	0%

Impurity Limits (Per 100g)

Item	Limit per 100g	Unit
Magnesium Citrate (Hexahydrate)	99.0~103.0	g
Moisture (Loss on Drying)	≤29.0	g
Insoluble Matter in Hydrochloric Acid	≤0.1	g
Chloride (as Cl)	≤0.05	g
Sulfate (as SO_4)	≤0.2	g
Iron (Fe)	≤20	mg
Lead (Pb)	≤0.3	mg
Total Arsenic (As)	≤0.3	mg
Cadmium (Cd)	≤0.2	mg

Applicable Population

- All groups (infants, children, adults, pregnant women, lactating women, the elderly)
- People with magnesium deficiency, nervous tension, muscle spasm and bone health needs
- People with gastrointestinal sensitivity and diabetes (organic magnesium with low irritation and good absorption)

Safety Instructions

- Compliant with national standards **GB 1903.38-2020** and **GB 14880-2012**

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- Safe under normal dosage with no obvious toxic and side effects
- Excessive intake may cause diarrhea and gastrointestinal discomfort; dosage shall be added in accordance with standard limits