

## SPECIFICATION

|                                                                       |
|-----------------------------------------------------------------------|
| <b>Product Name:</b> Calcium Citrate Malate Powder USP Grade          |
| <b>Chemical Formula:</b> $Ca_6(C_6H_5O_7)_2(C_4H_4O_5)_3 \cdot 6H_2O$ |
| <b>CAS Number:</b> 142606-53-9                                        |
| <b>Molecular Weight:</b> 1,123.0 g/mol                                |
| <b>Appearance:</b> White powder                                       |
| <b>Odor:</b> Odorless                                                 |

### Chemical Composition

| Parameter                 | Unit | Typical Value | Specification (Min./Max.)                                                                                                                                                                                                |
|---------------------------|------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Identification (A)        | -    | Complies      | A Voluminous white precipitate that is soluble in hydrochloric acid is formed.                                                                                                                                           |
| (B)                       | -    | Complies      | The retention times of the citric acid peak and the malic acid peak of the sample solution correspond to those of the system suitability solution, as obtained in the test for content of citrate, malate, and fumarate. |
| Assay                     | %    | 23.7%         | 23.0% to 24.2%                                                                                                                                                                                                           |
| Limit of fluoride         | µg/g | < 30 µg/g     | NMT 30µg/g                                                                                                                                                                                                               |
| Arsenic                   | µg/g | < 3 µg/g      | NMT 3 µg/g                                                                                                                                                                                                               |
| Lead                      | µg/g | < 1 µg/g      | NMT 1µg/g                                                                                                                                                                                                                |
| Sum of citrate and Malate | %    | 74.2%         | NLT 73% on the dried basis                                                                                                                                                                                               |
| Fumarate                  | %    | 0.04%         | NMT 0.1% on the dried basis                                                                                                                                                                                              |
| pH                        | -    | 6.11          | 4.0 to 8.0                                                                                                                                                                                                               |
| Loss on drying            | %    | 9.8%          | Between 8.0% and 11%                                                                                                                                                                                                     |

### **Physical Properties**

- Solubility: Soluble in water. Soluble in mineral acid. Insoluble in ethanol. Insoluble in acetone. Insoluble in ether.

### **Shelf Life & Storage**

- Shelf Life: 5 years from date of manufacture under recommended storage.  
- Storage Conditions: Store in a cool, dry, and well-ventilated place at 15–30°C. Protect from moisture, excessive humidity, direct sunlight, and contamination. Keep the container tightly closed in the original, properly labeled packaging to prevent moisture absorption and caking. Store away from strong acids, strong oxidizing agents, and incompatible materials. Proper storage helps maintain the product's purity, free-flowing properties, calcium content, and stability in accordance with USP standards.

### **Applications**

- Use: Widely used as a highly bioavailable source of calcium in pharmaceutical, nutraceutical, food, and dietary supplement formulations. It supports bone and teeth health, normal muscle function, nerve transmission, blood clotting, and overall calcium metabolism. It is commonly incorporated into calcium supplements, tablets, capsules, chewable tablets, powders, sachets, oral liquids, fortified foods, functional beverages, and multivitamin–multimineral formulations. Due to its good absorption and gastrointestinal tolerability, it is often selected for products intended to help maintain adequate calcium intake while complying with USP standards.  
- Dosage: Depends on the intended use, age, dietary calcium intake, and the amount of elemental calcium required.

### **Packaging**

- Standard Packing: 25 Kgs woven pp bag with inner liner or as per customer requirement.  
- Labeling: Product name, batch number, net weight, manufacture date, expiry date, and manufacturer details.

\* Specifications are based on the manufacturer's provided specifications.