

## SPECIFICATION

|                                                            |
|------------------------------------------------------------|
| <b>Product Name:</b> Menthol Crystal Large 100% Pure       |
| <b>Chemical Formula:</b> C <sub>10</sub> H <sub>20</sub> O |
| <b>CAS Number:</b> 2216-51-5                               |
| <b>Molecular Weight:</b> 156.27 g/mol                      |
| <b>Appearance:</b> Large free-flowing crystals             |
| <b>Odor:</b> Odor                                          |

### Chemical Composition

| Parameter               | Unit | Typical Value | Specification (Min./Max.) |
|-------------------------|------|---------------|---------------------------|
| Identification          | -    | Complies      | Positive for menthol      |
| Assay                   | %    | 99.8%         | ≥99.0                     |
| Melting range           | °C   | 42.3°C        | 41.0°C - 44.0°C           |
| Optical rotation (20°C) | °C   | -49.5°C       | -49°C to -50°C            |
| Non- volatile residue   | %    | 0.02%         | NMT 0.05%                 |
| Residue on evaporation  | %    | 0.02%         | NMT 0.05%                 |
| Heavy metals            | PPM  | Complies      | NMT 10 PPM                |
| Lead                    | PPM  | Complies      | NMT 2 PPM                 |
| Arsenic                 | PPM  | Complies      | NMT 1 PPM                 |
| Cadmium                 | PPM  | Complies      | NMT 1 PPM                 |
| Mercury                 | PPM  | Complies      | NMT 0.1 PPM               |
| Moisture content        | %    | 0.10%         | NMT 0.5%                  |

### **Physical Properties**

- Solubility: Soluble in water. Soluble in ethanol. Soluble in chloroform. Soluble in ether. Soluble in fixed volatile oils. Soluble in propylene glycol.

### **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 15–25°C. Protect from heat, direct sunlight, moisture, and air, as menthol is volatile and may sublime on prolonged exposure. Keep the container tightly closed in the original, properly labeled, airtight container. Store away from strong oxidizing agents, ignition sources, and open flames to maintain product quality, purity, and stability.

### **Applications**

- Use: Widely used as a cooling agent, flavoring agent, and fragrance ingredient in pharmaceutical, food, nutraceutical, cosmetic, oral care, and personal care formulations. It provides a cooling sensation and is commonly incorporated into cough drops, lozenges, inhalants, vapor rubs, balms, ointments, creams, gels, mouthwashes, toothpastes, chewing gum, confectionery, beverages, shampoos, soaps, and massage products. It is also used in aromatherapy and topical formulations to provide a refreshing sensory effect.  
- Dosage: Depends on the intended application, formulation, and route of use.

### **Packaging**

- Standard Packing: 25 Kgs Fiber Drum, 1 Kgs and 100 Grams 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.