

Technical Data Sheet (TDS)

- 1,6DAHDM (1,6-Diaminohexane Dimaleate)

Revision Date: 28 FEB 2026

1. Product Overview

- **Product Name:** 1,6DAHDM (1,6-Diaminohexane Dimaleate)
- **English Name:** 1,6-Hexanediamine Dimaleate; Hexamethylenediamine Dimaleate
- **CAS Number:** 124-09-4 (base material); N/A (dimaleate salt)
- **Molecular Formula:** C₁₄H₂₄N₂O₈
- **Molecular Weight:** 348.35 g/mol
- **Form:** White to off-white free-flowing crystalline powder
- **Odor:** Faint amine odor, low volatility, no pungent smell

1,6DAHDM is a water-soluble organic amine salt synthesized by the neutralization reaction of 1,6-diaminohexane (hexamethylenediamine) and maleic acid. It is a high-performance curing agent for waterborne epoxy resins, featuring excellent water solubility, low odor, good storage stability and moderate curing speed. The product has high purity, low free amine content, and the cured epoxy system exhibits excellent mechanical properties, adhesion, chemical resistance and water resistance. It complies with industrial environmental protection standards, is non-flammable in solid form, and is widely used in waterborne epoxy coatings, adhesives, sealants and polymer modification fields.

2. Technical Specifications (Complies with Industrial Standard)

Item	Specification
Appearance	White to off-white crystalline powder, no caking
Assay (1,6-Diaminohexane Dimaleate)	≥ 98.0%
pH Value (5% aqueous solution, 25°C)	4.0 ~ 6.0
Loss on Drying (105°C, 2h)	≤ 0.5%
Residue on Ignition	≤ 0.1%
Free 1,6-Diaminohexane	≤ 0.5%
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Chloride (Cl ⁻)	≤ 0.01%
Sulfate (SO ₄ ²⁻)	≤ 0.01%
Water Solubility (25°C)	Fully soluble in water (≥50 g/100 mL)
Particle Size (D50)	50 ~ 200 μm
Storage Stability (25°C, 18 months)	No caking, assay change ≤ 0.5%
Curing Performance (25°C)	Gel time 2 ~ 4h, full curing 24 ~ 48h

3. Product Advantages

1. **Excellent Water Solubility:** Fully soluble in water, no organic solvent required, low VOC, meets environmental protection emission standards.
2. **Low Odor & Low Volatility:** Ultra-low free amine content, significantly reduces the pungent odor of traditional amine curing agents, improves construction environment.
3. **Superior Curing Performance:** Moderate room-temperature curing speed, no rapid gelation, good construction operability; cured film has high hardness, excellent adhesion to metal/concrete/wood.
4. **Good Storage Stability:** Free-flowing crystalline powder, no caking under normal storage conditions, 18-month shelf life for unopened products.
5. **Excellent Compatibility:** Good miscibility with various waterborne epoxy emulsions, no delamination or flocculation after mixing, suitable for most waterborne epoxy formulations.
6. **Outstanding Mechanical Properties:** The cured epoxy system has high tensile strength, impact resistance and chemical resistance (acid/alkali/salt), and good water resistance.

4. Application Fields



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- **Waterborne Epoxy Coatings:** Industrial floor coatings, architectural anti-corrosion coatings, concrete sealing coatings, wood anti-corrosion coatings, metal anti-rust coatings.
- **Waterborne Adhesives:** Structural adhesives, construction adhesives, composite material adhesives, wood adhesives, packaging adhesives.
- **Sealants & Potting Compounds:** Waterborne epoxy sealants for construction, electronic potting compounds (low viscosity type), industrial sealing materials.
- **Polymer Synthesis:** Monomer for polyamide resin synthesis, crosslinking agent for waterborne acrylic resins, modifier for polyurethane materials.
- **Other Fields:** Textile finishing agents, papermaking additives, metal surface treatment agents.

5. Usage Methods

Mixing Ratio (adjust according to epoxy resin type and application requirements)

- **Waterborne Epoxy Floor Coatings:** 1,6DAHDM : Waterborne epoxy emulsion = 1:3 ~ 1:5 (mass ratio, dissolved in water first)
- **Waterborne Epoxy Adhesives:** 1,6DAHDM : Waterborne epoxy emulsion = 1:2 ~ 1:4 (mass ratio)
- **Sealants/Potting Compounds:** 1,6DAHDM : Waterborne epoxy emulsion = 1:4 ~ 1:6 (mass ratio, appropriate dilution with water)

Preparation & Curing

1. Dissolve 1,6DAHDM in deionized water (mass ratio 1:1 ~ 1:2) at room temperature, stir evenly until fully dissolved to form a clear curing agent solution.
2. Mix the curing agent solution with waterborne epoxy emulsion in the specified ratio, stir at low speed (300 ~ 500 rpm) for 3 ~ 5 minutes to avoid foam generation.
3. Add pigments, fillers or functional additives as needed, and stir evenly for secondary dispersion (avoid high-speed stirring).
4. Construct by brushing, rolling, spraying or casting; the recommended construction temperature is 15 ~ 35°C, relative humidity ≤ 80%.
5. Room temperature curing (25°C): gelation in 2 ~ 4h, film formation in 24h, basic performance in 48h, optimal performance in 7 days (can be heated to 40 ~ 60°C to accelerate curing).

6. Packaging & Storage

Packaging Specifications

- 1 kg/5 kg sealed HDPE plastic bag (inner) + carton (outer) (laboratory/R&D small-batch use)
- 25 kg sealed HDPE plastic drum (industrial small-scale use)
- 50 kg sealed PP woven bag (bulk industrial use)
- Custom packaging available according to customer requirements.

Storage Conditions

1. Store in a **cool, dry, well-ventilated warehouse** at 5 ~ 30°C; avoid direct sunlight, high temperature (>35°C) and high humidity (RH >70%).
2. Keep the container tightly sealed to prevent moisture absorption and caking; avoid contact with air and water for a long time.
3. Store separately from strong acids, strong oxidants, alkalis and organic solvents; isolation distance ≥1m.

7. Safety & Protection

1. The product is a mild irritant; avoid direct contact with skin, eyes and mucous membranes during operation; avoid inhalation of dust.
2. **Recommended PPE:** Dust mask, nitrile rubber gloves, chemical safety goggles, anti-static lab coat; wear a face shield for large-scale handling.
3. **Accident Treatment:**
 - Skin Contact: Rinse the affected area with plenty of running water for 10 ~ 15 minutes; if irritation occurs, apply neutral skin care cream.
 - Eye Contact: Pry open the eyelids and rinse with plenty of clean running water for 15 minutes; consult an ophthalmologist immediately if redness and pain persist.
 - Inhalation (dust): Move to fresh air immediately, keep the respiratory tract unobstructed; if coughing occurs, give oxygen and consult a physician if necessary.