NEWAY SINOPHC TECH. LIMITED
ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
Email:marketing01@newayphc.com； Phone:+86-021-50350029 https://www.newayphc.com

Technical Data Sheet (TDS)

1. Product Overview

- **Product Name**: Potassium Oxalate
- **English Name**: Potassium Oxalate
- **CAS Number**: 583-52-8
- **Formula**: $K_2C_2O_4$
- **Molecular Weight**: 166.22 g/mol
- **Product Characteristics**: High-purity white crystalline powder, slightly hygroscopic, soluble in water, neutral to mild alkaline. Non-combustible, chemically stable at room temperature, decomposes at high temperature (>300℃). Excellent chelating and precipitating properties for metal ions; ideal as an analytical reagent and electroplating brightener. Ultra-low impurity content, high solubility, consistent quality; suitable for analytical chemistry, electroplating, textile and pharmaceutical applications.

2. Technical Specifications

Item	Specification (Industrial/Analytical Grade)
Appearance	White crystalline powder/crystals
Purity ($K_2C_2O_4$)	≥ 99.0%
Moisture Content	≤ 0.2%
pH Value (5% aq. solution, 25℃)	7.0-8.5
Potassium Chloride Content	≤ 0.05%
Potassium Sulfate Content	≤ 0.05%
Calcium Content	≤ 0.01%
Heavy Metals (Pb)	≤ 2 ppm
Iron (Fe)	≤ 2 ppm
Insoluble Matter in Water	≤ 0.01%
Solubility (water, 20℃)	≥ 35 g/100mL
Decomposition Temperature	>300℃

3. Product Advantages

1. **High Purity**: ≥99% purity with ultra-low heavy metal and anion impurities; meets analytical reagent standards; suitable for precision chemical analysis.
2. **Excellent Solubility**: Soluble in water (36.4 g/100mL at 20℃); fast dissolution rate; no agglomeration; easy to prepare aqueous solutions.
3. **Superior Chelating Property**: Strong chelating ability for metal ions (Ca^{2+}, Fe^{3+}, Cu^{2+}); ideal for ion precipitation and metal cleaning.
4. **Stable Quality**: Strict quality control; each batch tested for purity and impurities; consistent physical/chemical properties; no batch-to-batch variation.
5. **Good Stability**: 24-month shelf life under normal storage; no degradation at room temperature; slightly hygroscopic with minimal impact on performance.
6. **Multi-Scenario Use**: Versatile as analytical reagent, electroplating brightener, textile mordant and pharmaceutical intermediate; high cost-performance ratio.

4. Application Fields

- **Analytical Chemistry**: Precipitating reagent for metal ion analysis (Ca^{2+}, Mg^{2+}, Fe^{3+}); standard reagent for acid-base titration; chelating agent for complexometric titration.
- **Electroplating Industry**: Electroplating brightener and buffer for nickel/copper plating; improves plating layer brightness and uniformity; reduces plating defects.
- **Textile Industry**: Mordant for natural dyeing (e.g., indigo, madder); improves dye-metal ion chelation; enhances color fastness and dye fixation rate.

- **Pharmaceutical Industry**: Intermediate for pharmaceutical synthesis (e.g., antimalarial drugs, anti-inflammatory drugs); raw material for medicinal oxalate salts.
- **Metal Treatment**: Metal surface cleaning agent; removes calcium/iron scale from industrial equipment; chelates heavy metal ions in wastewater.
- **Other**: Catalyst for organic synthesis; photographic developer additive; laboratory reagent for chemical research.

5. Usage Methods

- **Analytical Chemistry (Ion Precipitation)**: Prepare 5-10% (w/v) aqueous solution; add to sample solution in molar excess (1.2:1); adjust pH to 7.0-8.0; stir for 30 minutes; filter and collect precipitate.
- **Electroplating Brightener**: Add 0.5-1.5% (w/v) to nickel/copper plating bath; stir until fully dissolved; maintain plating bath pH at 4.0-6.0; plating temperature 40-50℃.
- **Textile Mordant**: Prepare 2-3% (w/v) aqueous solution; immerse textiles in the solution for 1-2 hours at 30-40℃; dry before dyeing; improves dye fixation rate by 20-30%.
- **Metal Cleaning**: Prepare 10-15% (w/v) aqueous solution; immerse contaminated metal parts for 30-60 minutes; rinse with water and dry; removes calcium/iron scale effectively.
- **Optimal Conditions**: Use deionized water for analytical/electroplating applications; use at 15-30℃; avoid mixing with strong oxidizers/ferric salts; seal the container after use to prevent moisture absorption.

6. Packaging & Storage

- **Packaging Specifications**: 100 g/500 g/1 kg analytical grade PE bottles, 25 kg HDPE drums, 200 kg HDPE drums, 1000 kg IBC totes; customized packaging for analytical/industrial use available upon request.
- **Storage Conditions**: Cool, dry, well-ventilated warehouse (≤25℃); store in sealed moisture-proof containers; avoid direct sunlight, high temperature and high humidity; keep away from strong oxidizers, ferric salts and acidic materials.
- **Shelf Life**: 24 months (unopened, specified conditions); 3 months after opening (seal tightly with moisture-proof tape and store in a desiccator for analytical grade).
- **Transportation**: Non-dangerous goods; transport by ordinary vehicles; avoid collision, leakage, direct sunlight and high temperature; keep sealed; do not transport with strong oxidizers/ferric salts; marine pollutant – avoid transport near waterways.

7. Safety & Protection

- Wear safety goggles, nitrile gloves and N95 dust mask for all handling; face shield is recommended for bulk powder processing to avoid eye contact.
- Avoid dust inhalation and eye contact at all times; serious eye irritation may occur if the powder/solution contacts eyes.
- Rinse eyes with plenty of water for 10-15 minutes if contact occurs and consult an ophthalmologist immediately.
- Wash hands thoroughly with soap and water after handling; no eating/drinking/smoking in the work area.
- Do not mix with strong oxidizers (e.g., potassium permanganate) and ferric salts (e.g., ferric chloride); dispose of waste in accordance with local hazardous waste regulations.

8. Quality Assurance

- Manufactured under ISO 9001 (quality) and ISO 14001 (environmental) management systems; strict raw material inspection and production process control.
- Analytical grade product meets international reagent standards; each batch is tested for purity, impurities and chelating performance; accompanied by a Certificate of Analysis (COA).
- Customized purity grades (99%/99.5%/99.9%) available for analytical and high-precision industrial use; technical support for formulation optimization.
- Provide on-site technical guidance for electroplating and textile dyeing applications; after-sales service for quality feedback and problem solving; free sample available for testing.