

## Technical Data Sheet (TDS)

### 1. Product Overview

- Product Name: Chlorine Dioxide Aqueous Solution
- English Name: Chlorine Dioxide
- CAS Number: 10049-04-4
- Formula:  $\text{ClO}_2$
- Molecular Weight: 67.45 g/mol
- Product Characteristics: High-efficiency, broad-spectrum oxidizing disinfectant and sterilizer. Stabilized aqueous solution with slow-release properties, providing long-lasting bactericidal, virucidal, and fungicidal effects. Does not produce harmful byproducts (e.g., trihalomethanes) like traditional chlorine disinfectants. Stable under cool, dark conditions; suitable for water treatment, disinfection, and food preservation.

### 2. Technical Specifications (Complies with GB/T 20783-2006)

Item	Specification
Appearance	Colorless to pale yellow transparent liquid
Available Chlorine Dioxide Content	0.8-1.2%
pH Value (25°C)	3.0-5.0
Density (25°C)	1.01-1.05 g/cm <sup>3</sup>
Heavy Metals (Pb)	≤ 0.0005%
Arsenic (As)	≤ 0.0001%
Mercury (Hg)	≤ 0.000005%
Cadmium (Cd)	≤ 0.00005%
Stabilizer Content (as $\text{Na}_2\text{CO}_3$ )	0.5-1.0%
Storage Stability	≥ 90% Available $\text{ClO}_2$ Retention after 6 months (25°C)
Viscosity (25°C)	10-15 mPa·s
Solubility	Fully miscible with water

### 3. Product Advantages

1. **Environmentally Friendly:** No harmful byproducts (e.g., THMs) during disinfection; safe for humans and ecosystems.
2. **Broad-Spectrum Disinfection:** Kills bacteria, viruses, fungi, algae, and protozoa; effective against drug-resistant pathogens.
3. **Stable & Easy to Use:** Stabilized aqueous solution, no on-site generation required; simple dilution and application.
4. **Long-Lasting Effect:** Slow  $\text{ClO}_2$  release ensures sustained disinfection, reducing application frequency.
5. **Versatile Compatibility:** Works in wide pH range (3.0-9.0); compatible with most water treatment systems and materials.

### 4. Application Fields

- **Water Treatment:** Municipal drinking water disinfection; sewage and wastewater treatment; swimming pool, spa, and aquaculture water sterilization.
- **Surface Disinfection:** Food processing plants, medical facilities, public areas, and household surfaces; equipment and tool sterilization.
- **Food Preservation:** Fresh fruits, vegetables, and seafood surface disinfection; extends shelf life without affecting taste.

- **Wastewater Treatment:** Industrial wastewater (breeding, food processing, chemical) deodorization and sterilization.
- **Other Fields:** Air disinfection (hospitals, laboratories); mold control in buildings; textile and paper bleaching.

## 5. Usage Methods

- **Dosage (as available ClO<sub>2</sub>):**
  - Drinking Water Disinfection: 0.1-0.3 mg/L (dissolve and add to water).
  - Swimming Pool Water: 0.3-0.5 mg/L (maintain residual ClO<sub>2</sub> 0.05-0.1 mg/L).
  - Surface Disinfection: Dilute to 0.05-0.1% solution (500-1000 mg/L); spray or wipe, contact for 5-10 minutes.
  - Food Preservation: Dilute to 0.01-0.02% solution (100-200 mg/L); soak for 5 minutes, rinse with clean water.
- **Usage:** Dilute with water before use; stir evenly; avoid contact with acids or ammonia.
- **Optimal Conditions:** Use at 15-35°C; avoid direct sunlight (protects ClO<sub>2</sub> stability); pH 3.0-9.0.

## 6. Packaging & Storage

- **Packaging Specifications:**
  - 25 kg HDPE plastic drums (industrial use)
  - 5 L HDPE plastic buckets (commercial use)
  - 1000 kg IBC totes (large-scale projects)
  - Custom packaging available upon request.
- **Storage Conditions:** Store in cool, dark, well-ventilated warehouse ( $\leq 25^{\circ}\text{C}$ ); keep tightly closed; avoid direct sunlight and high temperature; store separately from acids, reducing agents, and combustibles.
- **Shelf Life:** 6 months (unopened, specified conditions); use within 1 month after opening.
- **Transportation:** UN 1908 (Class 5.1 Oxidizer); transport in cool, dark containers; avoid collision, leakage, and mixing with incompatible substances.

## 7. Safety & Protection

- Strong oxidizer, corrosive, and toxic to aquatic organisms.
- Operators must wear chemical goggles, face shield, nitrile gloves, and acid-resistant clothing.
- In case of contact, rinse with plenty of water for  $\geq 15$  minutes; seek medical attention immediately.
- Do not ingest; if swallowed, rinse mouth with water and consult a doctor.
- Avoid mixing with acids (releases toxic ClO<sub>2</sub> gas); dispose of waste properly to protect the environment.

## 8. Quality Assurance

- Manufactured in accordance with ISO 9001 quality management system standards.
- Each batch is tested with a Certificate of Analysis (COA) to meet GB/T 20783-2006.
- Provide technical support: dosage adjustment, dilution method optimization, and safety operation guidance.