

## Technical Data Sheet (TDS)

### 1. Product Overview

- **Product Name:** Oxytocin
- **English Name:** Oxytocin
- **CAS Number:** 50-56-6
- **Formula:** C<sub>43</sub>H<sub>66</sub> N<sub>12</sub>O<sub>12</sub>S<sub>2</sub>
- **Molecular Weight:** 1007.19 Da
- **Product Characteristics:** High-purity nonapeptide hormone, white lyophilized powder, odorless, soluble in water/saline buffer. Ultra-high biological activity (≥400 IU/mg) and HPLC purity (≥98%), low endotoxin/heavy metal/aggregation content. Stable at 2-8°C for 24 months, degrades at high temperature/freeze-thaw cycles. Non-combustible, fully biodegradable, non-toxic to the environment. May cause allergic reactions in sensitive individuals; strict PPE required for handling. Suitable for biopharmaceutical R&D and reproductive biology research.

### 2. Technical Specifications (Pharmaceutical Grade)

Item	Specification
Appearance	White to off-white lyophilized powder
Purity (HPLC)	≥ 98.0%
Biological Activity	≥ 400 IU/mg
pH Value (1mg/mL in H <sub>2</sub> O, 25°C)	3.0-5.0
Moisture Content	≤ 3.0%
Bacterial Endotoxin	≤ 1 EU/mg
Sterility	Negative
Heavy Metals (Pb)	≤ 5 ppm
Optical Rotation	[α] <sub>20</sub> <sup>D</sup> = -65 to -75° (1mg/mL in H <sub>2</sub> O)
Aggregation (SEC-HPLC)	≤ 1.0%
Amino Acid Analysis	Conforms to theoretical ratio
Solubility	Soluble in water/0.9% saline buffer
Storage Stability	24 months (2-8°C, sealed, protected from light)
Reconstituted Stability	72 hours (2-8°C, 1mg/mL aqueous solution)

### 3. Product Advantages

1. **Ultra-High Purity & Activity:** ≥98% HPLC purity and ≥400 IU/mg biological activity; consistent batch-to-batch quality ensures reliable experimental results.
2. **Ultra-Low Impurities:** ≤1 EU/mg endotoxin, trace heavy metals and aggregation; meets USP/EP pharmaceutical grade requirements for R&D and formulation.
3. **Excellent Stability:** 24-month shelf life at 2-8°C; mannitol as lyoprotectant prevents peptide degradation; stable reconstituted solution for 72h at 2-8°C.
4. **Sterile & Apyrogenic:** Sterile (negative) and low endotoxin; no additional sterilization required for in vitro experiments/cell culture.
5. **Biodegradable & Eco-Friendly:** Fully biodegradable via peptide hydrolysis; non-toxic to aquatic/soil organisms; no environmental pollution risk.
6. **Easy to Use:** Soluble in water/saline buffer (no organic solvent needed); simple reconstitution for immediate lab use; compatible with most biological buffers.

### 4. Application Fields

- **Biopharmaceutical R&D:** Oxytocin drug development, formulation research, potency testing and quality control of oxytocic products.
- **In Vitro Diagnostics:** Raw material for oxytocin immunoassay kits (ELISA, chemiluminescence); clinical diagnostic reagent for reproductive disease detection.
- **Reproductive Biology Research:** Uterine contraction study, lactation research, parturition mechanism research and animal reproductive model experiments.



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- **Pharmaceutical Formulation:** Pre-formulation research for injectable oxytocin preparations; excipient compatibility and stability testing.
  - **Academic Research:** Peptide hormone structure-activity relationship study, neuroendocrine system research, hormone receptor interaction experiments.
- ### 5. Usage Methods
- **Reconstitution:** Add sterile water/0.9% physiological saline buffer to the lyophilized powder to prepare 1mg/mL stock solution; gently swirl (do not vortex) to dissolve completely (avoid foam generation).
  - **Stock Solution Storage:** 1mg/mL stock solution stored at 2-8°C for ≤72h; aliquot and freeze at -20°C for long-term use (avoid repeated freeze-thaw cycles).
  - **Working Concentration:** Dilute stock solution with appropriate buffer (PBS, acetate buffer) to working concentration (0.01-10 µg/mL, adjust according to experiment).
  - **Optimal Conditions:** Use sterile technique for all operations; perform experiments at 25±2°C; use acidic buffer (pH3.0-5.0) to maintain peptide stability; discard unused reconstituted solution after 72h.
- ### 6. Packaging & Storage
- **Packaging Specifications:** 1mg/vial, 5mg/vial, 10mg/vial, 50mg/vial (sterile glass vials with rubber stoppers and aluminum crimp seals); customized packaging (100mg-1g) available upon request.
  - **Storage Conditions:** 2-8°C (refrigerated), dark, sealed, protected from light and moisture; avoid freeze-thaw cycles, high temperature (>40°C) and room temperature storage; store in a dedicated biological reagent refrigerator.
  - **Shelf Life:** 24 months (unopened, 2-8°C); 72 hours (reconstituted 1mg/mL aqueous solution, 2-8°C); 6 months (aliquoted stock solution, -20°C, avoid repeated freeze-thaw).
  - **Transportation:** UN 3373 (Biological Substance, Category B); **refrigerated transport (2-8°C)** with insulated packaging and ice packs; use cold chain express delivery; avoid freeze-thaw and direct sunlight during transport.
- ### 7. Safety & Protection
- **Mandatory PPE:** Wear nitrile gloves, N95 dust mask, chemical splash goggles and lab coat for all handling; use face shield and sterile gloves for powder weighing/reconstitution.
  - **Handling Precautions:** Operate in a clean, well-ventilated lab/dust-free workbench; avoid dust generation/inhalation/skin/eye contact; use sterile technique for reconstitution; no eating/drinking/smoking in work area.
  - **Allergy Prevention:** Sensitive individuals (to peptides/proteins) should avoid contact; keep antihistamine/bronchodilator available in the lab for emergency use.
  - **Emergency Measures:** Rinse eyes with plenty of water for 15-20 minutes and consult a doctor if contact occurs; wash skin with soap and water for 10 minutes if irritation/rash occurs; seek medical attention immediately for respiratory allergy symptoms.
- ### 8. Quality Assurance
- Manufactured under ISO 9001 and GMP management systems; strict raw material inspection and pharmaceutical-grade production process control.
  - Each batch is tested for purity, biological activity, endotoxin, sterility and physical-chemical properties; accompanied by a Certificate of Analysis (COA) complying with USP/EP standards.
  - All raw materials are sourced from GMP-certified suppliers; full traceability of production, testing and shipping records for all batches.
  - Provide professional technical support: reconstitution guidance, buffer selection, experimental protocol optimization and data analysis; custom synthesis service for modified oxytocin peptides available.
  - Comply with international regulations (REACH, TSCA, IATA); complete product certification and testing reports available upon request; technical training for lab use provided for large-scale R&D projects.