

Technical Data Sheet (TDS)

1. Product Overview

- **Product Name:** Glucagon
- **English Name:** Glucagon
- **CAS Number:** 9007-92-5
- **Formula:** 29 Amino Acid Polypeptide Hormone (His-Ser-Gln-Gly-Thr-Phe-Thr-Ser-Asp-Tyr-Ser-Lys-Tyr-Leu-Asp-Ser-Arg-Arg-Ala-Gln-Asp-Phe-Val-Gln-Trp-Leu-Met-Asn-Thr)
- **Molecular Weight:** 3485.0 Da
- **Product Characteristics:** High-purity pancreatic polypeptide hormone, white lyophilized powder, odorless, soluble in water/dilute acid buffer. Ultra-high biological activity (≥ 1.0 IU/mg) and HPLC purity ($\geq 98\%$), 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 diabetes research.

2. Technical Specifications (Biopharmaceutical Grade)

Item	Specification
Appearance	White to off-white lyophilized powder
Purity (HPLC)	$\geq 98.0\%$
Biological Activity	≥ 1.0 IU/mg
pH Value (1mg/mL in H ₂ O, 25°C)	2.5-3.5
Moisture Content	$\leq 3.0\%$
Bacterial Endotoxin	≤ 1 EU/mg
Sterility	Negative
Heavy Metals (Pb)	≤ 5 ppm
Protein Content	$\geq 95.0\%$
Amino Acid Analysis	Conforms to theoretical ratio
Aggregation (SEC-HPLC)	$\leq 1.0\%$
Solubility	Soluble in water/dilute acid 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:** $\geq 98\%$ HPLC purity and ≥ 1.0 IU/mg biological activity; consistent batch-to-batch quality ensures reliable experimental results for diabetes research.
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 and maintains biological activity.
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/dilute acid buffer (no organic solvent needed); simple reconstitution for immediate lab use; compatible with most biological buffers.

4. Application Fields

- **Biopharmaceutical R&D:** Glucagon drug development, formulation research, potency testing and quality control of anti-hypoglycemic products.
- **In Vitro Diagnostics:** Raw material for glucagon immunoassay kits (ELISA, chemiluminescence); clinical diagnostic reagent for pancreatic function and diabetes detection.
- **Diabetes Research:** Blood glucose regulation study, pancreatic islet cell function research, hypoglycemia treatment mechanism experiment.



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- **Endocrinology Research:** Hormone interaction study (glucagon-insulin axis), metabolic regulation research, animal model experiment for diabetes.
- **Academic Research:** Peptide hormone structure-activity relationship study, G protein-coupled receptor signaling pathway research, pancreatic hormone secretion mechanism study.

5. Usage Methods

- **Reconstitution:** Add sterile water/0.1M HCl 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 (0.01-5 µg/mL, adjust according to experiment).
- **Optimal Conditions:** Use sterile technique for all operations; perform experiments at 25±2°C; use acidic buffer (pH2.5-3.5) 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 glucagon 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.