

Technical Data Sheet (TDS)

Issue Date: 28 FEB 2026 Version: V1.0

1. Product Overview

- **Product Name:** Thiocolchicoside
- **CAS Number:** 2115-91-5
- **Molecular Formula:** C₂₉ H₃₃NO₁₅ S
- **Molecular Weight:** 667.64 g/mol
- **Chemical Source:** Synthetic fine chemical (synthesized via colchicine glycosylation and thioetherification; purified by recrystallization to ensure high purity and low impurity content; optimized process for good formulation compatibility for aqueous pharmaceutical preparations).
- **Product Trait:** White to off-white crystalline powder, practically odorless, slightly hygroscopic and light/air-sensitive; freely soluble in water/organic alcohols, insoluble in non-polar solvents; stable in dry, dark and weakly acidic environment, mild hydrolysis in strong alkaline environment; good stability in pharmaceutical processing with light protection and low temperature.
- **Core Properties:** **Centrally acting skeletal muscle relaxant** with selective binding to gamma-aminobutyric acid (GABA) receptors; inhibits spinal reflexes and reduces skeletal muscle spasm/tone; relieves muscle pain and stiffness caused by trauma/inflammation; low systemic side effects, high safety for oral/topical use; classic pharmaceutical raw material for clinical muscle spasm treatment.
- **Main Application:** Pharmaceutical raw material for human oral/topical formulations (tablets, capsules, topical gels); treatment of skeletal muscle spasm, back pain, neck pain and musculoskeletal inflammation; pharmaceutical R&D reference reagent for neuroscience and muscle relaxant pharmacology research.

2. Technical Specifications (Pharmaceutical Grade, Complies with USP/EP/CP)

Item	Specification
Appearance	White to off-white crystalline powder
Odor	Practically odorless
Assay (Thiocolchicoside)	98.0-102.0%
Loss on Drying	≤ 0.5%
Residue on Ignition	≤ 0.1%
Heavy Metals (Pb)	≤ 2 ppm
Heavy Metals (As)	≤ 1 ppm
Related Substances	≤ 1.0%
Optical Rotation ([α] ₂₀ ^D)	-130° to -140°
pH Value (1% aqueous solution, 25°C)	5.0-7.0
Solubility in Water	Freely soluble
Total Bacterial Count	≤ 10 CFU/g
E. coli	Negative
Yeast & Mold	≤ 10 CFU/g
Particle Size	95% passing 100 mesh
Bulk Density	1.52-1.56 g/cm ³
Photostability	≤ 0.5% related substances after 7 days (25°C, light exposure)
Water Solubility	≥ 50 g/L (25°C)

3. Product Advantages

1. **Selective GABA Receptor Binding:** Selectively acts on spinal GABA receptors, inhibits excessive skeletal muscle reflexes without significant sedative effects on the central nervous system; minimal impact on consciousness and motor function, high safety for clinical use.
2. **Fast & Long-Acting Muscle Relaxation:** Rapidly relieves muscle spasm and stiffness within 30-60 minutes after oral administration; the effect lasts for 6-8 hours, reducing medication frequency and improving patient compliance.

3. **Dual Formulation Compatibility:** Suitable for both **oral solid formulations** (tablets/capsules) and **topical formulations** (gels/creams); free water solubility ensures good dissolution in oral preparations, and good compatibility with topical gel excipients for local muscle pain relief.
4. **Pharmaceutical Grade Purity:** Meets USP/EP/CP pharmacopoeia standards; ultralow heavy metal/microbial limits; high assay (98.0-102.0%) and low related substances; suitable for GMP production of clinical oral/topical formulations.
5. **Excellent Stability:** Good stability in neutral/weakly acidic pharmaceutical formulations; 36-month shelf life under sealed storage conditions; slight hygroscopy with no significant quality impact; light protection only required for long-term storage.
6. **Low Systemic Side Effects:** No significant sedation, dizziness or hypotension at clinical doses; mild side effects (occasional gastrointestinal discomfort) with low incidence; well-tolerated by adult patients.

4. Application Fields

4.1 Pharmaceutical Industry (Oral/Topical Formulations)

- **Oral Tablets/Capsules:** Core raw material for 4mg/8mg thiocolchicoside tablets/capsules; first-line treatment for skeletal muscle spasm caused by cervical spondylosis, lumbar disc herniation and soft tissue injury; 4-8mg per dose, 2-3 times daily.
- **Topical Gels/Creams:** Formulation for 1-2% topical gels; local application for muscle pain, neck/back stiffness and sports injury; direct smearing on the affected area, 2-3 times daily, low systemic absorption.
- **Combination Formulations:** Adjuvant raw material for musculoskeletal combination formulations (with non-steroidal anti-inflammatory drugs); simultaneous muscle relaxation and anti-inflammatory/analgesic effects, rapid relief of musculoskeletal pain.

5. Usage & Formulation Guidelines

5.1 Recommended Dosage/Concentration (Pharmaceutical Formulations)

- **Oral Tablets (Adults):** 4mg/8mg per tablet (pure thiocolchicoside); 1 tablet per dose, 2-3 times daily, taken with water after meals.
- **Topical Gel (Adults):** 1-2% w/w gel formulation; apply an appropriate amount to the affected area and massage gently until absorbed, 2-3 times daily.

6. Packaging & Storage

6.1 Packaging Specifications (Pharmaceutical Grade, Light Protection & Anti-Hygroscopic)

- 100 g/bottle: Amber glass pharmaceutical bottle with aluminum foil seal (R&D/analytical use, light protection).
- 1 kg/bag: Aluminum foil vacuum bag with PE inner lining (small-batch production, light protection).
- 5 kg/25 kg/drum: HDPE brown pharmaceutical drum with aluminum foil inner lining (bulk production, light protection).
- Custom packaging (500 g/2 kg) available for R&D/custom formulation (all light-proof + moisture-proof).

7. Safety & Protection

- The product is a central muscle relaxant pharmaceutical raw material with mild nervous system toxicity and irritant effects; **all operations by trained professional personnel** with full PPE (N95 dust mask, safety goggles, nitrile gloves, impermeable lab coat).
- Avoid eye/skin/mucous membrane/respiratory tract contact; operate in a well-ventilated dust-free fume hood with light protection; monitor nervous system function (dizziness/muscle weakness) for personnel with prolonged handling exposure.
- In case of eye contact: Rinse with plenty of water for 15 minutes and call a doctor immediately. In case of skin contact: Rinse with water/soap for 5 minutes; seek medical advice if irritation persists. If swallowed: Rinse mouth, do not induce vomiting, call a POISON CENTER at once.
- Collect all production waste/cleaning water for professional hazardous waste disposal; no discharge to the environment.