

## Technical Data Sheet (TDS)

**Issue Date:** February 28, 2026 **Product Name:** Trehalose (Feed Grade) **CAS Number:** 99-20-7

### 1. Product Overview

**Trehalose** ( $\alpha$ -D-glucopyranosyl  $\alpha$ -D-glucopyranoside) is a non-reducing disaccharide naturally occurring in various organisms such as yeast, mushrooms, and tardigrades. As a feed grade additive, it is produced by enzymatic conversion of starch. Trehalose is renowned for its exceptional ability to stabilize proteins, lipids, and cell membranes against dehydration, heat, and freezing. It acts as a natural protectant, moisture retainer, and mild sweetener, improving feed quality, stability, and palatability for a wide range of animal species.

### 2. Chemical and Physical Properties

Property	Typical Value
Chemical Name	$\alpha$ , $\alpha$ -Trehalose Dihydrate
CAS No.	99-20-7
Molecular Formula	$C_{12}H_{22}O_{11} \cdot 2H_2O$
Molecular Weight	378.33 g/mol
Appearance	White crystalline powder
Odor	Odorless
Taste	Sweet (approx. 45% the sweetness of sucrose)
pH (5% w/v in H <sub>2</sub> O)	5.0 - 6.5
Water Solubility	~68 g/100 mL (25°C)
Bulk Density	0.7 - 0.9 g/cm <sup>3</sup>
Reducing Sugar	≤ 0.1%
Stability	Stable to heat, acid, and oxidation

### 3. Quality Specifications (Feed Grade)

Test Item	Specification
Assay (on dry basis)	≥ 99.0%
Loss on Drying	8.0% - 10.0%
Residue on Ignition	≤ 0.1%
Reducing Sugar (as Glucose)	≤ 0.1%
Heavy Metals (Pb)	≤ 10 ppm
Arsenic (As)	≤ 2 ppm
Microbial Limits	Total Aerobic Count ≤ 10 <sup>4</sup> CFU/g; Yeast & Mold ≤ 10 <sup>2</sup> CFU/g; E. coli/Salmonella: Negative

### 4. Product Advantages & Mechanism of Action

- Bio-protection:** Forms a "glass-like" matrix that encapsulates proteins and nutrients, preventing degradation during feed processing (pelletting, extrusion) and storage.
- Stress Resistance:** Enhances animals' ability to cope with environmental stress (heat, cold, transportation) by mimicking its natural role in cryptobiosis.

3. **Palatability:** Provides a mild, clean sweetness that improves feed acceptance, especially for young or stressed animals.
4. **Moisture Control:** Excellent humectant properties, preventing feed from drying out or caking.
5. **Non-Cariogenic:** Cannot be metabolized by oral bacteria, reducing the risk of dental issues in pets and livestock.
6. **Natural Origin:** Derived from starch, it is a clean-label ingredient.

## 5. Applications & Recommended Dosage

Trehalose is suitable for inclusion in feeds for livestock, poultry, aquaculture, and pets.

Application	Function	Recommended Dosage (per ton of feed)
Weaned Piglets	Improves palatability, stabilizes milk replacer proteins	500 - 1,500 g
Poultry (Heat Stress)	Thermoprotectant, maintains nutrient integrity	300 - 800 g
Aquaculture	Stabilizes vitamins in water, protects live feed (Artemia)	1,000 - 3,000 g
Pet Food	Moisture retainer, palatability enhancer, stabilizes antioxidants	200 - 1,000 g
Feed Premixes	Stabilizes sensitive enzymes, vitamins, and probiotics	1% - 5% of premix weight

## 6. Handling and Storage

- **Handling:** Trehalose is a free-flowing powder but may form dust. Use in a well-ventilated area and wear appropriate PPE to avoid inhalation. It is compatible with all common feed ingredients.
- **Storage:** Store in the original sealed packaging in a cool, dry warehouse (15-25°C, RH < 65%). Protect from excessive moisture (to prevent clumping) and excessive heat (to prevent loss of water of hydration).
- **Shelf Life:** 24 months from the date of manufacture when stored under recommended conditions.

## 7. Packaging

- **Small Pack:** 1 kg, 5 kg, 10 kg sealed aluminum foil bags (moisture-proof).
- **Standard Pack:** 25 kg multi-ply paper bags with an inner polyethylene (PE) liner.
- **Bulk Pack:** 500 kg / 1000 kg FIBC bulk bags with PE liners.
- **Custom Packaging:** Available upon request.

## 8. Regulatory Compliance

- **China:** Complies with GB 13078 and is listed in the Ministry of Agriculture and Rural Affairs Feed Additive Catalogue.
- **EU:** Approved for use in animal nutrition under Regulation (EC) No 1831/2003. Registered under REACH.
- **USA:** Generally Recognized as Safe (GRAS) for animal feed use by the FDA.