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Technical Data Sheet (TDS)

- Feed Grade Caramel (8028-89-5)Issue Date: 20 FEB 2026 | Version: V1.0

1. Product Overview

- **Product Name**: Caramel (Feed Grade)
- **CAS Number**: 8028-89-5
- **Formula**: Amorphous mixture of caramelized natural saccharides (glucose, fructose, maltose polymers) with deionized water as matrix
- **Core Characteristics**: Natural brown feed colorant, high color intensity, good water solubility, excellent palatability enhancement, non-toxic, fully biodegradable, stable under normal feed processing and storage conditions. Compliant with global feed safety standards (GB, EU, FDA).
- **Core Application**: Exclusive feed additive for livestock (pigs, cattle, sheep), poultry (layers, broilers, ducks) and aquaculture (fish, shrimp, crab). Improves feed color and palatability (promotes animal feed intake), enhances pigmentation of animal products (egg yolk, meat, shrimp flesh), and no residues in animal products.

2. Technical Specifications (Feed Grade, Compliant with GB 13078.1-2017)

Item	Standard Requirement	Test Method
Appearance	Dark brown to black homogeneous viscous liquid, no impurities	Visual Inspection
Solid Content	≥65.0%	Gravimetric Method (105℃, 3h)
pH Value (25℃, 10% solution)	3.0-5.5	Digital pH Meter
Color Intensity (0.1% solution)	≥5000 EBC units (420nm)	UV-Vis Spectrophotometry
Sulfite (as SO_2)	≤50 ppm	Ion Chromatography
Heavy Metals (as Pb)	≤5 ppm	Atomic Absorption Spectrometry (AAS)
Arsenic (As)	≤2 ppm	Atomic Fluorescence Spectrometry (AFS)
Cadmium (Cd)	≤1 ppm	AAS
Mercury (Hg)	≤0.1 ppm	Cold Vapor Atomic Absorption
Total Bacterial Count	≤100 CFU/mL	Plate Count Method
E. coli	Negative	Microbiological Detection
Salmonella	Negative in 25mL	GB 13078.1 Method
Density (25℃)	1.25-1.35 g/cm³	Hydrometer Method
Viscosity (25℃)	500-1500 mPa·s	Rotational Viscometry
Water Solubility	Fully miscible with water	Visual Inspection

3. Product Advantages (Feed Grade Focus)

1. **Natural & Safe**: Derived from food/feed grade saccharides, no synthetic pigments or chemical additives, non-toxic, no residues in animal products (meat, eggs, milk). Compliant with organic feed formulation requirements.
2. **High Color Intensity**: Low addition amount, obvious brown coloring effect; color is stable and not easy to fade in feed, meets the color requirements of various compound feeds.
3. **Palatability Enhancement**: Mild sweet caramel scent, improves feed flavor, promotes animal feed intake, especially suitable for young animals (piglets, chicks, fry) with low feed intake and stressed animals.

4. Application & Dosage Guide (Feed Formulation)

4.1 Target Species & Core Benefits

- **Poultry (Layers/Broilers/Ducks)**: Improves feed color and palatability, promotes feed intake; enhances egg yolk and chicken skin brown pigmentation, improves product commercial value.

- **Swine (Weaners/Growers/Finishers)**: Relieves weaning stress, increases feed intake and growth rate; improves pork color and meat quality (reduces pale meat).
- **Aquaculture (Fish/Shrimp/Crab)**: Improves aquatic feed palatability, increases feeding rate; enhances shrimp flesh and fish skin pigmentation, improves product appearance.

4.2 Recommended Inclusion Levels (w/w, based on total compound feed)

Species	Growth/Production Stage	Recommended Dosage	Core Effect
Poultry	Layers (Egg production stage)	0.10% - 0.30%	Egg yolk pigmentation + feed palatability
Poultry	Broilers (All stages)	0.05% - 0.20%	Skin pigmentation + promote feed intake
Swine	Weaners (7-30 kg)	0.20% - 0.40%	Relieve stress + increase feed intake
Swine	Growers/Finishers	0.10% - 0.20%	Improve pork color + meat quality
Aquaculture	Fish/Shrimp (All stages)	0.15% - 0.40%	Increase feeding rate + flesh pigmentation
Ruminants	Dairy Cows/Beef Cattle	0.10% - 0.30%	Improve feed palatability + increase intake
Note: Adjust dosage according to feed base color, desired coloring effect and animal species. Higher dosage is recommended for low-palatability feed and stressed animals.			

5. Handling & Formulation Guidelines

1. **Dilution First**: The product is a viscous liquid; **dilute with deionized water at a ratio of 1:5-1:10** before adding to feed to ensure uniform mixing. Stir the dilution evenly before use.
2. **Processing Timing**: Add the diluted caramel at the **mixing stage** of feed production (before pelleting). It can also be added at the cooling stage to minimize high-temperature exposure (better for color stability).
3. **Compatibility Control**: Fully compatible with amino acids, vitamins, minerals and probiotics. **Avoid direct mixing with high-concentration strong acids/bases** (pH<2 or pH>10) to prevent color degradation.

6. Packaging, Storage & Shelf Life

- **Small Packaging**: 5 kg/10 kg HDPE plastic drums (sealed, for small feed mills/premix manufacturers)
- **Standard Packaging**: 25 kg HDPE plastic drums (food/feed grade, sealed, for industrial use)
- **Bulk Packaging**: 200 kg HDPE plastic drums / 1000 kg IBC totes (for large feed mills, closed loading/unloading)
- **Custom Packaging**: Available upon request (custom weight, small bottles for sample testing)

7. Quality Assurance & Control

1. **Production Standards**: Produced in a GMP-compliant facility with ISO 9001 (Quality Management) and ISO 14001 (Environmental Management) certifications. Using food/feed grade saccharide raw materials; closed production process to ensure product purity and stability.
2. **Batch Testing**: Every batch undergoes rigorous testing for color intensity, solid content, heavy metals, microbiology and physical-chemical properties. A detailed English COA is provided with each shipment, including color stability and processing performance test data.
3. **Third-Party Validation**: Accepts testing by international authoritative laboratories (SGS, Intertek, BV) to verify compliance with China (GB), EU (EC 1831/2003) and US (FDA) feed safety standards.