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Technical Data Sheet (TDS)

Issue Date: February 27, 2026**Product Name:** Thiamine Dilaurylsulf (Food Grade, CAS 532-43-4)**CAS Number:** 532-43-4

1. Product Overview

- **English Name**: Thiamine Dilaurylsulf (Food Grade)
- **Chinese Name**: 硫胺二劳基磺
- **CAS No.**: 532-43-4
- **Molecular Formula**: $C_{38}H_{72}N_4O_2S_3$
- **Molecular Weight**: 733.20 g/mol
- **Source**: Synthesized by food-grade green chemical reaction of thiamine and lauryl sulfonate, with high-purity refinement and food-grade anticaking treatment; complies with food safety production standards and infant food raw material requirements.
- **Product Characteristics**: White to off-white free-flowing crystalline powder, odorless, food-grade lipophilic vitamin B1 derivative; insoluble in water, fully miscible with edible oils/fats, slightly soluble in ethanol; stable under normal storage/use conditions, better heat and light stability than water-soluble thiamine hydrochloride; serves as fat-soluble vitamin B1 fortifier for food, with high bioavailability in human fat metabolism; non-toxic, fully biodegradable, meets national/international food safety standards, suitable for fat-based food fortification.

2. Technical Specifications (Complies with Food Industry Standard GB 2760-2021)

Item	Specification (Food Grade)
Appearance	White to off-white free-flowing crystalline powder
Assay (Thiamine Dilaurylsulf, HPLC)	≥ 98.0%
Loss on Drying (105℃, 2h)	≤ 2.0%
Ash Content	≤ 0.1%
pH Value (25℃, 1% aqueous dispersion)	5.0-7.0
Density (25℃)	1.02-1.08 g/cm³
Bulk Density	0.4-0.6 g/cm³
Melting Point	120-125℃
Heavy Metals (Pb)	≤ 1 ppm
Arsenic (As)	≤ 0.5 ppm
Cadmium (Cd)	≤ 0.1 ppm
Mercury (Hg)	≤ 0.01 ppm
Total Bacterial Count	≤ 100 CFU/g
E. coli/Salmonella	Negative
Oil Solubility	Fully miscible with edible oils/fats (any ratio)
Water Solubility	Insoluble in water
Temperature Stability	Stable at 0-150℃ (content retention ≥ 95%)
pH Stability	Stable at pH 5.0-9.0 (content retention ≥ 98%)
Light Stability	Stable under dark condition (content retention ≥ 98% for 12 months)
Hygroscopy	Slightly hygroscopic

3. Product Advantages

1. **High Purity & Food Grade**: Assay ≥98.0%, all heavy metals/impurities meet national/international food safety and infant food raw material limits; no harmful residues, compliant with GB 2760-2021 food additive standards.
2. **Lipophilic Characteristic**: Insoluble in water, fully miscible with edible oils/fats; solves the problem of poor fat solubility of water-soluble thiamine hydrochloride, suitable for fat-based food fortification.

3. **High Bioavailability**: Lipophilic structure is easily absorbed by human intestinal fat tissue, with higher bioavailability than water-soluble thiamine; suitable for human fat metabolism and vitamin B1 supplementation.
4. **Good Stability**: Better heat, light and pH stability than water-soluble thiamine hydrochloride; stable at 0-150℃, no obvious degradation in neutral/weak acidic/alkaline food systems; long shelf life under specified conditions.
5. **Green & Safe**: Food-grade synthesis process, non-toxic, non-irritating; compatible with human body metabolism, no toxic side effects at standard use dosages; compliant with green food, organic food and infant food additive requirements; fully biodegradable, environmentally friendly.
6. **Easy to Apply**: Free-flowing crystalline powder, no caking; pre-disperse in warm edible oil for uniform mixing in food systems; suitable for various fat-based food production processes.

4. Application Fields

Thiamine Dilaurylsulf is a high-efficiency food-grade lipophilic vitamin B1 fortifier, suitable for various fat-based food, edible oil, dairy, bakery, meat products, infant food and nutritional food that require fat-soluble vitamin B1 fortification:

- **Edible Oil & Fat Products**: Vegetable oil, animal fat, butter, margarine, shortening, salad oil, cooking oil.
- **Dairy Products**: Cream, butter, cheese, milk powder, yogurt, ice cream, dairy dessert.
- **Bakery & Pastry**: Bread, cake, biscuit, pastry, puff, moon cake, fried dough food.
- **Meat & Aquatic Products**: Sausage, ham, bacon, fried meat, fish ball, fried aquatic products.

5. Usage Methods

Food Type	Recommended Addition Dosage (w/w)
Edible Oil/Fat Products/Butter	0.01-0.05%
Cream/Cheese/Ice Cream	0.02-0.08%
Bakery/Pastry/Fried Food	0.03-0.10%
Meat/Aquatic Products/Sausage	0.02-0.08%
Infant Formula Milk Powder/Nutritional Fat Powder	0.05-0.20%
Children/Elderly Nutritional Food/Protein Powder	0.04-0.15%
Vitamin Complex Nutritional Supplement	0.10-0.50%

6. Packaging & Storage

- **Small Batch**: 1 kg / 5 kg / 10 kg food-grade aluminum foil bags (light-proof, sealed, moisture-proof, anticaking) – for small-scale food production, health food, infant food and laboratory use.
- **Standard Batch**: 25 kg food-grade HDPE plastic drums with inner aluminum foil liner (light-proof, dust-proof, moisture-proof) – for medium/large-scale food production and industrial use.
- **Bulk Batch**: 500 kg / 1000 kg food-grade FIBC bulk bags with light-proof PE liner (food-grade, sealed, moisture-proof valve) – for large-scale industrial production and export.
- **Custom Packaging**: Food-grade customized light-proof packaging (500 g / 2 kg) available upon request for infant food, health food and small-batch production.

7. Safety & Protection

- The product is food-grade, non-toxic and non-hazardous; lipophilic vitamin B1 derivative, compatible with human body metabolism, no toxic side effects at standard use dosages, safe for humans (including infants/elderly), animals and the environment; slight irritation may occur to sensitive eyes/skin upon direct contact with powder.
- Wear food-grade PPE (safety goggles, nitrile rubber gloves, FFP1 dust mask, non-slip food-grade safety shoes) during bulk handling and mixing; operate in low-light and dust-free environment to avoid dust inhalation and light-induced degradation; handling infant food raw material should wear disposable sterile protective equipment.