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Technical Data Sheet (TDS)

- Feed Grade Choline Chloride (67-48-1)
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1. Product Overview

- **Product Name**: Choline Chloride (Feed Grade)
- **CAS Number**: 67-48-1
- **Molecular Formula**: $C_5H_{14}ClNO$ | **Molecular Weight**: 139.62 g/mol
- **Chemical Classification**: Quaternary ammonium salt, essential vitamin B4 nutrient
- **Core Characteristics**: High purity (≥98.0%), water-soluble, mild hygroscopic, stable under feed processing conditions. Essential methyl donor for animals; promotes fat metabolism, liver health and growth development. Compliant with GB/EU/FDA feed safety standards, non-toxic at recommended levels.
- **Core Application**: Exclusive feed additive for all livestock (pigs, cattle, sheep), poultry (layers, broilers, ducks) and aquaculture (fish, shrimp, crab). Prevents fatty liver disease, improves feed conversion rate, enhances reproductive performance and growth rate; essential for young animal development and high-yield livestock/poultry production.

2. Technical Specifications (Feed Grade, GB/T 17771-2018)

Item	Standard Requirement	Test Method
Appearance	White to off-white crystalline powder, free-flowing	Visual Inspection
Choline Chloride Assay	≥98.0%	Potentiometric Titration
pH Value (10% aqueous, 25℃)	5.0-7.0	Digital pH Meter
Moisture Content	≤0.5%	Karl Fischer Titration
Residue on Ignition	≤0.1%	Gravimetric Method (600±50℃)
Chloride Content (as Cl^-)	25.0-26.0%	Volumetric Method ($AgNO_3$)
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/g	Plate Count Method
E. coli	Negative	Microbiological Detection
Salmonella	Negative in 25g	GB 13078.1 Method
Bulk Density	0.80-0.90 g/cm³	Volumetric Method
Water Solubility	≥500 g/L (25℃)	Visual/Volumetric Method

3. Product Advantages (Feed Grade Focus)

1. **Essential Nutrient**: Core vitamin B4 component and methyl donor for animals; cannot be synthesized in sufficient quantities by the animal body, must be supplemented via feed.
2. **Liver & Fat Metabolism**: Prevents fatty liver degeneration in livestock/poultry (a common feed-related disease); promotes fat transport from the liver, improves liver function and animal health.
3. **Growth Promotion**: Improves feed conversion rate (FCR), accelerates weight gain in meat animals, and increases egg production/fertility in poultry; enhances young animal survival and development.
4. **High Purity & Bioavailability**: ≥98.0% pure, 100% water-soluble, rapidly absorbed by animal intestines; no inert impurities, high utilization rate.
5. **Processing Stability**: Resistant to high temperatures of feed pelleting (≤120℃, short time); no degradation, retains 100% activity under standard feed production conditions.

4. Application & Dosage Guide (Feed Formulation)

4.1 Target Species & Core Benefits

- **Swine**: Prevents fatty liver, improves FCR and growth rate; enhances sow lactation and litter vitality; critical for weaned piglet development (reduces stress-related diarrhea).
- **Poultry**: Prevents fatty liver syndrome in layers (improves egg production and laying persistence); boosts broiler weight gain; enhances hatchability and chick vitality.

4.2 Recommended Inclusion Levels (g/ton of total compound feed)

Species	Growth/Production Stage	Recommended Dosage
Swine	Suckling/Weaned Piglets (0-30 kg)	500-800
Swine	Growers/Finishers (30-120 kg)	300-500
Swine	Sows (Gestation/Lactation)	600-900
Poultry	Chicks (0-21 days)	400-600
Poultry	Layers (Egg production)	300-500
Poultry	Broilers (Finisher)	200-400
Ruminants	Dairy Cows (Lactation)	400-700
Ruminants	Beef Cattle/Sheep (Fattening)	200-400
Aquaculture	Fish/Shrimp (All stages)	300-600
Note: Adjust dosage based on animal species, production stage, feed raw material composition and environmental conditions. Higher dosage is recommended for high-yield/stressed animals.		

5. Handling & Formulation Guidelines

1. **Premixing is Recommended**: Premix choline chloride with an inert carrier (corn starch, wheat middlings) at a ratio of 1:10 to 1:20 to create a premix; ensures uniform distribution in the main feed batch (low addition amount).
2. **Dry Handling**: The product is mildly hygroscopic; use dry equipment/tools for weighing/mixing. Avoid contact with water during feed production to prevent caking.
3. **Processing Timing**: Can be added at any stage of feed production (mixing/pelleting); stable under high-temperature pelleting (≤120℃), no need for post-cooling addition.

6. Packaging, Storage & Shelf Life

- **Small Packaging**: 1 kg/5 kg moisture-proof aluminum foil bags (for small feed mills/premix manufacturers)
- **Standard Packaging**: 25 kg moisture-proof PP woven bags with double PE inner liners (industrial use, anti-hygroscopic)
- **Bulk Packaging**: 500 kg/1000 kg jumbo bags with inner PE liners (for large feed mills, closed loading/unloading)
- **Custom Packaging**: Available upon request (custom weight, HDPE drums for liquid feed manufacturers)

7. Quality Assurance & Control

1. **Production Standards**: Produced in a GMP-compliant facility with ISO 9001 (Quality Management) and ISO 14001 (Environmental Management) certifications. Adopt closed production process to ensure high purity and low moisture; raw materials meet feed grade standards.
2. **Batch Testing**: Every batch undergoes rigorous testing for purity, moisture, heavy metals, microbiology and physical-chemical properties. A detailed English COA is provided with each shipment, including activity and solubility test data.