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Technical Data Sheet (TDS)

- Feed Grade Allicin
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1. Product Overview

- **Product Name**: Allicin (Feed Grade, 25% Formulation)
- **CAS Number**: 539-86-6 | **Molecular Formula**: $C_6H_{10}OS_2$ | **Molecular Weight**: 162.27 g/mol
- **Chemical Nature**: A natural organosulfur compound extracted from garlic (Allium sativum), stabilized in food-grade vegetable oil. It is the active component responsible for garlic's characteristic odor and antimicrobial properties.
- **Core Characteristics**: Natural origin, broad-spectrum antimicrobial activity, improves feed palatability, enhances animal immunity, and promotes growth. **Note**: This is a 25% liquid formulation for ease of mixing in feed.
- **Core Application**: Widely used as a **natural alternative to antibiotics** in feed for pigs, poultry, aquaculture (fish/shrimp) and ruminants. Improves intestinal health, reduces diarrhea, and increases feed conversion efficiency.

2. Technical Specifications (Feed Grade)

Item	Standard Requirement	Test Method
Assay (Allicin)	≥25.0%	High Performance Liquid Chromatography (HPLC)
Appearance	Pale yellow to yellow oily liquid	Visual Inspection
Odor	Strong garlic odor	Olfactory Inspection
Density (25℃)	1.110-1.140 g/cm³	Digital Densimeter
Refractive Index (n_D^{25})	1.550-1.570	Abbe Refractometer
pH Value (1% Emulsion)	5.0-7.0	Digital pH Meter
Water Content	≤0.5%	Karl Fischer Titration
Heavy Metals (as Pb)	≤1 ppm	Atomic Absorption Spectrometry (AAS)
Arsenic (As)	≤0.5 ppm	Atomic Fluorescence Spectrometry (AFS)
Microbiological Limits	Meets Feed Hygiene Standards	Plate Count & Detection Methods

3. Product Advantages (Feed Grade Focus)

1. **Natural Antimicrobial**: Broad-spectrum activity against bacteria (E. coli, Salmonella), fungi and parasites. Reduces the need for synthetic antibiotics, promoting **antibiotic-free breeding**.
2. **Palatability Enhancer**: The characteristic garlic odor is highly attractive to most livestock and poultry, significantly increasing feed intake, especially in young animals.
3. **Immunity Booster**: Stimulates the animal's immune system, improving resistance to diseases and reducing mortality rates during stress periods (weaning, transportation).
4. **Growth Promotion**: Improves nutrient absorption by regulating intestinal microflora, leading to better feed conversion ratio (FCR) and faster weight gain.
5. **No Residues**: Metabolized completely in the animal body; no drug residues in meat, eggs or milk. Complies with strict export standards.

4. Application & Dosage Guide (Feed Formulation)

4.1 Target Species & Core Benefits

- **Pigs**: Reduces post-weaning diarrhea in piglets; improves growth rate; controls respiratory diseases.
- **Poultry**: Reduces necrotic enteritis (Clostridium perfringens); improves egg production and shell quality; reduces coccidiosis incidence.
- **Aquaculture**: Prevents bacterial gill disease and enteritis in fish/shrimp; improves survival rate; reduces water pollution from uneaten feed.

- **Ruminants**: Improves rumen fermentation; increases milk production in dairy cows; reduces bloating.

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

Species	Growth/Production Stage	Recommended Dosage (25% Allicin)
Pigs	Weaners (7-30 kg)	0.04% - 0.08% (400-800 ppm)
Pigs	Growers/Finishers	0.02% - 0.04% (200-400 ppm)
Poultry	Broilers/Layers	0.02% - 0.05% (200-500 ppm)
Aquaculture	Fish/Shrimp (All Stages)	0.05% - 0.10% (500-1000 ppm)
Ruminants	Dairy Cows/Beef Cattle	0.03% - 0.06% (300-600 ppm)
Note: Higher dosages may be used during disease outbreaks or high-stress periods. Mix thoroughly to ensure uniform distribution.		

5. Handling & Formulation Guidelines

1. **Premixing is Mandatory**: Allicin is an oily liquid and will not mix directly with dry feed. First, mix it with a small amount of oil-soluble carrier (e.g., soybean oil) or absorb it onto an inert powder carrier (e.g., corn starch, zeolite powder) at a ratio of 1:5 to 1:10 to create a premix.
2. **Avoid High Temperature**: Allicin is heat-sensitive. **Add the premix after the pelleting process** (post-pelleting application) or during the cooling stage to prevent degradation. Do not expose to temperatures above 80℃ for extended periods.
3. **Light Protection**: Allicin decomposes in sunlight. Store all premixes in dark containers or bags.
4. **Compatibility**: Compatible with most feed additives including amino acids, vitamins (protect vitamins from oxidation) and probiotics. Do not mix with strong oxidizing agents.

6. Packaging, Storage & Shelf Life

- **Packaging Specifications**:
  - **Standard Packaging**: 1 kg, 5 kg amber glass bottles; 20 kg, 25 kg HDPE plastic drums (airtight, UV-protective).
  - **Bulk Packaging**: 200 kg plastic drums (for large feed mills).
  - **Sample Packaging**: 10 mL, 50 mL amber glass vials (sealed).
- **Storage Requirements**:
  - **Critical**: Store in a **cool, dry, dark place** (5℃ - 25℃). Protect from direct sunlight and heat.
  - Keep the container tightly sealed at all times to prevent volatilization of the active ingredient and contamination.
  - Shelf Life: **24 months (unopened, under specified conditions)**; 6 months after opening (if resealed tightly and stored properly).
- **Transportation Requirements**: Classified as a **Class 3 Combustible Liquid**. Transport in approved, sealed containers. Keep away from heat, sparks and open flames. Use covered vehicles to protect from sunlight.

7. Quality Assurance & Control

1. **Production Standards**: Produced from natural garlic extract in a GMP-compliant facility with ISO 9001 (Quality) and ISO 22000 (Food Safety) certifications.
2. **Batch Testing**: Every batch undergoes rigorous testing for allicin content, density, refractive index and microbiology. A detailed English COA is provided with each shipment.
3. **Third-Party Validation**: Accepts testing by international authoritative laboratories (SGS, Intertek) to verify natural origin and compliance with global feed safety standards.
4. **Technical Support**: A professional team provides guidance on premix formulation, post-pelleting application technology and dosage optimization to maximize the product's effectiveness.