

Technical Data Sheet (TDS)

1. Product Overview

- **Product Name:** Sodium Benzoate
- **English Name:** Sodium Benzoate
- **CAS Number:** 532-32-1
- **Formula:** C₇ H₅ O₂Na
- **Molecular Weight:** 144.11 g/mol
- **Product Characteristics:** High-purity white crystalline powder, food-grade and industrial-grade available, slightly hygroscopic, highly soluble in water, mild alkaline pH. Non-toxic in regulated dosages, FDA GRAS (E211) and EU approved food preservative. Effectively inhibits the growth of bacteria, yeast and mold through cell membrane disruption and enzyme inhibition. Chemically stable under normal storage, non-combustible, biodegradable, suitable for food, pharmaceutical, cosmetic and industrial preservation applications.

2. Technical Specifications

Item	Specification (Food Grade)
Appearance	White crystalline powder/granules
Purity (C ₇ H ₅ O ₂ Na)	≥ 99.0%
Moisture Content	≤ 0.5%
pH Value (5% aq. solution, 25°C)	7.0–8.5
Benzoic Acid Content	≤ 0.5%
Chloride (Cl ⁻)	≤ 0.01%
Sulfate (SO ₄ ²⁻)	≤ 0.01%
Heavy Metals (Pb)	≤ 2 ppm
Arsenic (As)	≤ 1 ppm
Iron (Fe)	≤ 0.002%
Insoluble Matter in Water	≤ 0.01%
Solubility (20°C)	≥60 g/100mL (water)
Hygroscopy	Slightly hygroscopic

3. Product Advantages

1. **Food-Grade Safety:** FDA GRAS (E211), EU and global food safety approved; non-toxic, no harmful residues in regulated dosages.
2. **Broad-Spectrum Antimicrobial:** Effectively inhibits bacteria, yeast and mold; ideal preservative for food, beverage and pharmaceuticals.
3. **High Efficiency:** Low dosage required (0.01-0.1% for food); optimal effect in acidic pH (2.5-6.0); synergistic effect with other preservatives (sorbates).
4. **Chemical Stability:** Stable under normal storage (36 months shelf life); no degradation at room temperature; compatible with most food ingredients.
5. **Good Solubility:** Highly soluble in water; easy to disperse and mix in aqueous formulations; no sedimentation or caking (proper storage).
6. **Cost-Effective:** Low raw material cost; low dosage requirement; reduces production cost for preservation applications.
7. **Eco-Friendly:** Biodegradable benzoate ion; no environmental accumulation; non-toxic to soil organisms; only harmful to aquatic life in high concentrations.

4. Application Fields

- **Food Industry (E211):** Preservative for beverages, jams, sauces, baked goods, dairy products, pickles and canned foods.



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- **Pharmaceuticals:** Preservative for oral liquids, syrups, ointments and topical formulations; inhibits microbial growth in pharmaceutical products.
- **Cosmetics & Personal Care:** Preservative for creams, lotions, shampoos and body washes; meets cosmetic safety standards (EU Cosmetic Regulation 1223/2009).
- **Industrial Use:** Biocide for water treatment, paint and coating preservative, adhesive preservative, textile auxiliaries biocide.
- **Animal Feed:** Feed preservative to inhibit mold and bacterial growth; improve feed shelf life (livestock and poultry feed).

5. Usage Methods

- **Food/Beverage:** Add 0.01-0.1% (w/w) to the final product; dissolve in water first for uniform mixing; optimal at pH 2.5-6.0; do not exceed national/regional regulatory limits.
- **Pharmaceuticals:** Add 0.05-0.2% (w/w) to aqueous formulations; adjust pH to 4.0-6.0 for maximum antimicrobial effect.
- **Cosmetics:** Add 0.05-0.1% (w/w) to cosmetic formulations; compatible with most surfactants and emollients; avoid use with strong acids.
- **Water Treatment:** Add 50-200 ppm to industrial cooling water or wastewater; inhibit bacterial and algal growth; prevent biofilm formation.
- **Optimal Conditions:** Use at 10-35°C; dissolve in water before use; avoid mixing with strong acids (forms benzoic acid precipitate); store in sealed containers after use.

6. Packaging & Storage

- **Packaging:** 1 kg food-grade PE bags, 25 kg HDPE drums (food/industrial grade), 50 kg fiber drums, 1000 kg IBC totes (bulk industrial); food-grade aluminum foil packaging available.
- **Storage:** Cool, dry, well-ventilated warehouse ($\leq 30^{\circ}\text{C}$); store in sealed moisture-proof containers; avoid direct sunlight and high humidity; separate food-grade from industrial grade; keep away from strong acids and oxidizers.
- **Shelf Life:** 36 months (unopened, specified conditions); 6 months after opening (seal tightly and use as soon as possible).
- **Transportation:** Non-dangerous goods; transport by ordinary vehicles; avoid collision, leakage, direct sunlight and high temperature; keep sealed during transport.

7. Safety & Protection

- Wear safety goggles and nitrile gloves for bulk powder handling; N95 dust mask to avoid powder inhalation.
- Avoid eye contact; rinse eyes with plenty of water if contact occurs; consult a doctor if irritation persists.
- No skin irritation; wash hands after handling (routine hygiene).
- Do not ingest excessive amounts; rinse mouth with water if accidentally swallowed; seek medical advice only for large ingestions with discomfort.
- Separate food-grade product from industrial chemicals; use dedicated equipment for food-grade processing (HACCP compliance).

8. Quality Assurance

- Manufactured under ISO 9001 (quality), ISO 14001 (environmental) and HACCP (food safety) management systems.
- Food-grade product complies with FSSC 22000 and global food safety standards; each batch tested for heavy metals and impurities.
- Each batch is accompanied by a Certificate of Analysis (COA); strict quality control for purity and antimicrobial efficiency.
- Provide customized technical solutions (dosage adjustment, pH optimization, synergistic formulation) for different applications; on-site technical support available.