

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Poloxamer 188
- English Name: Poloxamer 188
- CAS Number: 9003-11-6
- Formula: $(C_2H_4O)_a-(C_3H_6O)_b-(C_2H_4O)_a$ ($a \approx 80, b \approx 27$)
- Molecular Weight: Variable (7680-9510 g/mol)
- Product Characteristics: High-purity non-ionic block copolymer with excellent solubilization, emulsification, dispersion, and stabilization properties. Fully miscible with water and most organic solvents. Non-toxic, mild, and biocompatible, compliant with pharmaceutical, cosmetic, and food-grade standards. Stable over wide pH (3.0-11.0) and temperature (0-80°C) ranges.

2. Technical Specifications (Industrial Standard)

Item	Specification
Appearance	White to off-white waxy solid or flakes
Molecular Weight (GPC)	7680-9510 g/mol
Cloud Point (1% Aqueous Solution)	52-58°C
Viscosity (25°C, 20% Aqueous Solution)	200-400 mPa·s
pH Value (1% Aqueous Solution, 25°C)	5.0-7.5
Water Content	≤ 1.0%
Heavy Metals (Pb)	≤ 5 ppm
Arsenic (As)	≤ 1 ppm
Total Bacterial Count	≤ 100 CFU/g
E. coli	Negative
Residual Solvents (Ethanol)	≤ 0.5%
Density (25°C)	1.06-1.10 g/cm ³
Melting Point	52-56°C
Temperature Stability	Stable at 0-80°C (performance retention ≥ 90%)
pH Stability	Stable at 3.0-11.0 (performance retention ≥ 90%)

3. Product Advantages

1. Multi-Functional: Acts as solubilizer, emulsifier, dispersant, and stabilizer for multi-scenario applications.
2. Biocompatible: Non-toxic, mild, compliant with pharmaceutical/cosmetic/food standards, safe for humans and the environment.
3. Wide Compatibility: Works with ionic and non-ionic additives; no adverse reactions with most chemicals.
4. Stable Performance: Resists wide pH and temperature ranges, suitable for harsh process conditions.
5. Cost-Effective: Low dosage (0.1-5.0%); improves product stability and shelf life.

4. Application Fields

- **Pharmaceuticals:** Solubilizer for poorly soluble drugs; emulsifier for injections and oral formulations; stabilizer for vaccines and biologics.
- **Cosmetics:** Surfactant, moisturizer, and emulsifier for creams, lotions, shampoos, and skincare products.
- **Food Industry:** Emulsifier and stabilizer for dairy products, beverages, and processed foods (complies with FDA 21 CFR).
- **Industrial:** Dispersant for coatings and inks; defoamer for wastewater treatment; lubricant in metal processing.
- **Other Fields:** Biomedical materials (drug delivery systems); textile printing auxiliary; detergent additive.

5. Usage Methods

- Dosage:
 - Pharmaceuticals: 0.5-5.0% (based on formulation weight).
 - Cosmetics: 0.1-3.0% (emulsification/solubilization).
 - Food: 0.1-2.0% (complies with local additive limits).
 - Industrial: 0.5-5.0% (dispersion/defoaming).
- Usage: Melt at 55-60°C for solid formulations; dissolve in water/organic solvents for liquid systems; mix evenly with other ingredients.
- Optimal Conditions: pH 3.0-11.0, temperature 20-60°C; avoid high temperature (>80°C) for prolonged periods.

6. Packaging & Storage

- Packaging Specifications:
 - 1 kg aluminum foil bags (pharmaceutical/cosmetic grade).
 - 25 kg kraft paper bags with PE inner lining (industrial grade).
 - 1000 kg FIBC bulk bags (large-scale use).
 - Custom packaging available upon request.
- Storage Conditions: Store in cool, dry warehouse (5-30°C); keep tightly closed; avoid direct sunlight and high temperature; store separately from strong oxidizing agents.
- Shelf Life: 24 months (unopened, specified conditions); 6 months after opening.
- Transportation: Non-dangerous goods; transport by ordinary vehicles; avoid collision, moisture, and extreme temperatures.

7. Safety & Protection

- Low toxicity, mild irritation may occur in sensitive individuals.
- Wear safety glasses, nitrile gloves, and dust mask during powder handling.
- In case of skin/eye contact, rinse with plenty of water; seek medical attention if irritation persists.
- Do not ingest in excessive amounts; if swallowed, rinse mouth with water and consult a doctor.

8. Quality Assurance

- Manufactured in accordance with ISO 9001 and ISO 22000 (food-grade) management systems.
- Each batch is tested with a Certificate of Analysis (COA) to meet industrial/pharmaceutical/cosmetic standards.
- Provide technical support: dosage adjustment, formulation optimization, and application problem-solving.