

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Potassium Formate
- English Name: Potassium Formate
- CAS Number: 590-29-4
- Formula: HCOOK
- Molecular Weight: 84.12 g/mol
- Product Characteristics: High-purity white crystalline powder, highly soluble in water, hygroscopic, non-corrosive. Excellent low-temperature fluidity, used as eco-friendly deicing agent and oilfield drilling fluid additive. Stable under normal conditions, compatible with most inorganic/organic additives.

2. Technical Specifications

Item	Specification
Appearance	White to off-white crystalline powder/granules
Purity (HCOOK)	≥ 98.0%
Moisture Content	≤ 0.5%
pH Value (10% solution, 25°C)	7.0-9.0
Chloride (Cl ⁻)	≤ 0.01%
Sulfate (SO ₄ ²⁻)	≤ 0.01%
Heavy Metals (Pb)	≤ 5 ppm
Iron (Fe)	≤ 3 ppm
Insoluble Matter in Water	≤ 0.05%
Solubility (20°C)	≥ 330 g/100 mL (water)
Melting Point	168-170°C

3. Product Advantages

- **Eco-friendly:** Biodegradable, no harm to soil/vegetation, low aquatic toxicity.
- **High efficiency:** Low freezing point (30% solution: -50°C), excellent deicing/antifreeze performance.
- **Non-corrosive:** No corrosion to metal, concrete and rubber materials.
- **Hygroscopic:** Improves fluidity of drilling fluids in high-humidity environments.
- **Multi-functional:** Suitable for deicing, drilling, antifreeze and chemical synthesis.

4. Application Fields

- **Deicing & Anti-icing:** Airport runways, roads, bridges, vehicle antifreeze (eco-friendly alternative to chloride salts).
- **Oilfield Drilling:** Drilling fluid, completion fluid and workover fluid additive (maintains fluidity at low temperature).



NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
Email:marketing01@newayphc.com; Phone:+86-021-50350029 <https://www.newayphc.com>

- **Chemical Synthesis:** Intermediate for formate esters, pharmaceutical and fine chemical production.
- **Leather Tanning:** Tanning agent for leather processing (improves leather softness and toughness).
- **Other:** Electroplating bath additive, concrete early strength agent.

5. Usage Methods

- **Deicing Agent:** Prepare 20-30% aqueous solution; spray or spread on ice/snow surface (dosage: 50-200 g/m²).
- **Drilling Fluid:** Add 5-30% (mass ratio) to drilling fluid system; stir evenly to adjust viscosity and freezing point.
- **Antifreeze:** Mix 10-40% with water for industrial/vehicle antifreeze (adjust concentration by low temperature requirement).
- **Optimal Conditions:** Use at -50°C to 40°C; avoid mixing with strong oxidizing agents and concentrated acids.

6. Packaging & Storage

- **Packaging:** 25 kg HDPE drums (sealed), 1000 kg IBC totes (inner plastic bag), 500 g/bottle (laboratory use).
- **Storage:** Cool, dry, well-ventilated warehouse ($\leq 30^{\circ}\text{C}$); keep tightly sealed to prevent moisture absorption; store away from strong oxidizing agents and acids.
- **Shelf Life:** 36 months (unopened, under specified conditions).
- **Transportation:** Non-dangerous goods; avoid moisture, collision and direct sunlight during transport.

7. Safety & Protection

- Wear nitrile gloves and safety goggles during handling; wear dust mask for bulk powder operation.
- Avoid skin/eye contact and dust inhalation; rinse immediately with plenty of water if contact occurs.
- Do not ingest; seek medical advice if large amounts are accidentally swallowed.
- Keep away from food, beverages and animal feed during storage/use.

8. Quality Assurance

- Manufactured under ISO 9001 quality management system and ISO 14001 environmental management system.
- Each batch is strictly tested and accompanied by a Certificate of Analysis (COA).
- Provide customized technical solutions for different application scenarios (e.g., deicing concentration, drilling fluid formulation).