

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Sodium Phosphide
- English Name: Sodium Phosphide
- CAS Number: 12058-85-4
- Formula: Na_3P
- Molecular Weight: 99.94 g/mol
- Product Characteristics: Gray powder, strong phosphide source. Reacts violently with water to release toxic phosphine gas. Stable under inert gas and dry conditions, highly reactive with protic substances.

2. Technical Specifications

Item	Specification
Appearance	Gray to black powder
Purity (Na_3P)	$\geq 95.0\%$
Na Content	69.0-70.0%
P Content	30.0-31.0%
Heavy Metals (Pb)	$\leq 0.001\%$
Iron (Fe)	$\leq 0.01\%$
Moisture Content	$\leq 0.5\%$
Insoluble Matter in Liquid Ammonia	$\leq 0.5\%$
Stability	Stable under inert gas (N_2/Ar) and dry conditions

3. Product Advantages

- High purity as a reliable phosphide source for chemical synthesis.
- Strong reactivity for efficient phosphorus incorporation in target compounds.
- Stable under proper storage and handling conditions.

4. Application Fields

- Chemical Synthesis: Production of phosphine gas, phosphorus-containing organic compounds, and pharmaceuticals.
- Semiconductor Manufacturing: Dopant source for semiconductor materials.
- Laboratory Research: Reagent for inorganic and organic synthesis reactions.
- Hydrogen Storage: Component of hydrogen storage materials (via phosphine release).

5. Usage Methods

- Chemical Synthesis: Use under inert gas (nitrogen/argon) atmosphere. Add slowly to dry solvent or reaction system at 0-25°C.
- Phosphine Production: React with controlled amounts of water in sealed generators (avoid excess water).
- Semiconductor Dopant: Deposit via chemical vapor deposition (CVD) at high temperature.



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- Optimal Conditions: Use at 0-30°C under inert gas; avoid moisture and air contact.

6. Packaging & Storage

- Packaging Specifications: 100 g/bottle, 500 g/bottle (sealed under inert gas).
- Storage Conditions: Store in cool, dry, well-ventilated warehouse. Keep sealed under inert gas. Temperature $\leq 25^{\circ}\text{C}$. Avoid moisture, heat, and oxidizing agents.
- Shelf Life: 12 months (unopened, under specified storage conditions).
- Transportation: Handle as UN1432. Transport in moisture-proof, inert gas-sealed containers. Avoid collision and moisture.

7. Safety & Protection

- Handle only under inert gas (nitrogen/argon) in moisture-free environment.
- Wear full chemical protective suit, nitrile gloves, chemical splash goggles, face shield, and respiratory protection.
- Avoid contact with water, air, acids, and alcohols. In case of contact, follow first aid measures immediately.
- Firefighting: Use dry sand, dry powder, or CO_2 ; do not use water.

8. Quality Assurance

- Manufactured under ISO 9001 quality management system.
- Each batch accompanied by COA.
- Provide technical support for safe handling and application.

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