

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Calcium Carbide
- English Name: Calcium Carbide
- CAS Number: 75-20-7
- Formula: CaC_2
- Molecular Weight: 64.10 g/mol
- Product Characteristics: Gray lump/granular solid, highly reactive. Reacts violently with water to produce acetylene gas (flammable). Stable under dry conditions, used primarily as an acetylene source and chemical intermediate.

2. Technical Specifications

Item	Specification
Appearance	Gray to black lump/granular solid
Purity (CaC_2)	$\geq 80.0\%$
Calcium Oxide (CaO)	$\leq 10.0\%$
Moisture Content	$\leq 0.5\%$
Sulfur (S)	$\leq 0.1\%$
Phosphorus (P)	$\leq 0.05\%$
Heavy Metals (Pb)	$\leq 0.001\%$
Insoluble Matter in Water	$\leq 2.0\%$
Acetylene Yield	≥ 300 L/kg (at 20°C, 1 atm)

3. Product Advantages

- High acetylene yield for efficient welding and chemical synthesis.
- Stable under dry storage and handling conditions.
- Cost-effective source of acetylene and nitrogen-containing compounds.
- Versatile application in industrial processes.

4. Application Fields

- Acetylene Production: Reaction with water to produce acetylene gas for welding, cutting, and metal fabrication.
- Chemical Synthesis: Production of PVC (polyvinyl chloride), vinyl acetate, acetaldehyde, and calcium cyanamide.
- Welding & Cutting: Acetylene-oxygen flame for high-temperature welding and metal cutting.
- Fertilizer Industry: Production of calcium cyanamide (nitrogen fertilizer).
- Other: Mining (explosives), organic synthesis, laboratory reagent.

5. Usage Methods

- Acetylene Production: Add slowly to water in sealed generators (1 kg CaC_2 produces ~300 L acetylene).



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- Welding: Use acetylene-oxygen mixture with welding torch, adjust flame temperature (up to 3100°C).
- Chemical Synthesis: React acetylene (generated from CaC_2) with other reagents in controlled reaction systems.
- Optimal Conditions: Use at 15-30°C; avoid contact with water and acids during storage.

6. Packaging & Storage

- Packaging Specifications: 50 kg/drum (moisture-proof steel drum), 100 kg/drum (moisture-proof HDPE drum).
- Storage Conditions: Store in cool, dry, well-ventilated warehouse. Use moisture-proof containers. Keep away from water, acids, and oxidizing agents. Temperature $\leq 30^\circ\text{C}$.
- Shelf Life: 18 months (unopened, proper storage).
- Transportation: Handle as UN1402. Transport in moisture-proof vehicles. Avoid collision and moisture.

7. Safety & Protection

- Wear chemical protective suit, nitrile gloves, chemical splash goggles, and face shield during handling.
- Operate in well-ventilated area with moisture-free equipment.
- Avoid contact with water, air, and acids. 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 acetylene generation and application processes.