

## Technical Data Sheet (TDS)

### 1. Product Overview

- Product Name: Bromine
- English Name: Bromine
- CAS Number: 7726-95-6
- Formula: Br<sub>2</sub>
- Molecular Weight: 159.81 g/mol
- Product Characteristics: High-purity reddish-brown liquid with a pungent, irritating odor. Strong oxidizing and corrosive properties. Volatile at room temperature, forming toxic vapor.

### 2. Technical Specifications

Item	Specification
Appearance	Reddish-brown liquid
Odor	Pungent, irritating
Purity (Br <sub>2</sub> )	≥ 99.5%
Impurity (Chlorine)	≤ 0.2%
Impurity (Iodine)	≤ 0.1%
Moisture Content	≤ 0.3%
Heavy Metals (Pb)	≤ 0.001%
Boiling Point	59°C
Melting Point	-7.2°C
Density (25°C)	3.12 g/cm <sup>3</sup>
Vapor Pressure (20°C)	23.3 kPa
Oxidizing Activity	Strong oxidizer

### 3. Product Advantages

- High purity ensures reliable performance in synthesis and disinfection.
- Strong oxidizing and halogenating properties for efficient chemical reactions.
- Effective flame retardant intermediate for plastics and textiles.

### 4. Application Fields

- Organic Synthesis: Production of flame retardants (tetrabromobisphenol A), pharmaceuticals, agrochemicals, and dyes.
- Water Disinfection: Industrial wastewater, swimming pools, and cooling towers (alternative to chlorine).
- Chemical Industry: Manufacture of brominated solvents, hydrobromic acid, and bromide salts.
- Photography: Silver bromide for photographic films and papers.
- Metallurgy: Extraction of gold and silver from ores.

### 5. Usage Methods



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- Organic Synthesis: Add dropwise to reaction system at 0-25°C under inert gas. Use 1.0-1.2 equivalents relative to substrate.
- Water Disinfection: Add 1-5 ppm to water, maintain contact time of 30 minutes.
- Flame Retardant Production: React with bisphenol A at 50-70°C to produce tetrabromobisphenol A.
- Optimal Conditions: Use at 0-30°C; avoid contact with reducing agents and organic materials.
- Note: Strictly follow safety protocols; use only with trained personnel and proper equipment.

### 6. Packaging & Storage

- Packaging Specifications: Corrosion-resistant glass bottles (500 mL, 1 L), HDPE drums (25 L, 50 L) with leak-proof caps.
- Storage Conditions: Store in cool, dry, well-ventilated, corrosion-resistant warehouse. Keep containers tightly closed. Temperature  $\leq 25^{\circ}\text{C}$ . Keep away from heat, sunlight, reducing agents, and organic materials.
- Shelf Life: 12 months (unopened, under specified storage conditions).
- Transportation: Handle as UN1744. Transport in approved corrosion-resistant containers. Avoid collision, sunlight, and high temperature.

### 7. Safety & Protection

- Use only in well-ventilated, corrosion-resistant areas with gas detection systems and emergency shutdown devices.
- Wear self-contained breathing apparatus (SCBA), neoprene chemical suit, nitrile gloves, and chemical splash goggles at all times.
- Strictly prohibit contact with reducing agents, organic materials, and ammonia.
- In case of skin contact, rinse immediately with water and apply calcium gluconate gel if available.

### 8. Quality Assurance

- Manufactured under ISO 9001 quality management system and GB/T 3864 (hazardous chemical safety standard).
- Each container is tested for leakage and purity before delivery.
- Each batch accompanied by COA.
- Provide technical support for safe handling and application.