

Safety Data Sheet: Sodium Diisobutyl Dithiophosphate

1. Identification

Product	Sodium Diisobutyl Dithiophosphate; CAS 53378-51-1; EC 258-508-5
Use	Professional sulfide mineral flotation and reagent formulation.
Company	Hainan Zhongxin Chemical Co., Ltd. (ZXCHEM)
Address	Room 1001, Building A, Caohejing Center, No. 1520 Gumei Road, Xuhui District, Shanghai, China
Telephone / email	+86-21-54265599 / sales@zxchem.com.cn
Emergency contact	ZXCHEM office number above, office hours, China time (UTC+8). For urgent medical assistance contact local emergency services.
Scope	Reference safety information for Sodium Diisobutyl Dithiophosphate. The reference composition, concentration and supply-grade differences are described in Section 3. This document does not certify the composition or transport status of a specific delivered batch or a different formulation.

2. Hazards Identification

Classification	Reference reports corrosive skin and eye burns under legacy WHMIS Class E and D2B. No exact modern GHS skin-corrosion subcategory is assigned by that source; the communication summary preserves the corrosive hazard.
Signal word / symbols	Danger; GHS05
Hazard statements	Corrosive: causes burns to eyes and skin. Contact with acids can release toxic and flammable hydrogen sulfide. The source does not supply numbered GHS statements or subcategory test results.
Prevention	Use adequate ventilation; avoid inhaling mist. Prevent skin and eye contact. Wear suitable chemical-resistant gloves and eye protection. Wash after handling; keep food and drink out of the work area.
Response	After exposure, stop work and seek medical advice. For severe exposure obtain urgent medical care. Rinse contaminated skin or eyes with water; move an inhalation casualty to fresh air.
Environment	Prevent uncontrolled release to drains, soil or surface water. Collect spills for appropriate disposal.



3. Composition / Information on Ingredients

Reference ingredient	REFERENCE ONLY: Sodium Diisobutyl Dithiophosphate, CAS 53378-51-1, 49–53%; sodium hydroxide, CAS 1310-73-2, 0.5–1%; water balance. The actual supply TDS does not report a complete impurity profile.
Supply grade	49–53% active content
Applicability	The cited concentration or purity describes the reference material. It is not a certificate of analysis for the delivered batch; different solvents or dilutions require the matching supplier safety document.

4. First-Aid Measures

General	Protect rescuers; obtain prompt medical advice after significant exposure. Show the sheet to medical personnel.
Inhalation	Move to fresh air without entering a contaminated area unprotected. Trained personnel should assist breathing if needed. Obtain urgent medical attention for gas exposure, breathing difficulty or collapse.
Skin	Remove contaminated clothing and rinse with plenty of water. Obtain medical attention for burns, persistent irritation or allergic symptoms.
Eyes	Immediately rinse gently for at least 15 minutes, remove contact lenses if easy, and obtain urgent medical or ophthalmic attention.
Ingestion	Do not induce vomiting. Give nothing by mouth to an unconscious person. Obtain urgent medical attention.
Medical treatment	Treatment is directed by a clinician. Hydrogen sulfide exposure may disable smell; do not use odour to assess safety.

5. Fire-Fighting Measures

Extinguishing media	Use water spray, carbon dioxide or dry chemical according to the reference. Firefighters need full protective clothing and positive-pressure SCBA. Contain runoff and keep it away from acidic sewers.
Hazards	Hydrogen sulfide, sulfur oxides, carbon oxides and phosphorus-containing oxides may be released during acid contact or combustion.
Protection	Firefighters require suitable protective clothing and self-contained breathing equipment. Prevent contaminated firefighting water entering drains.

6. Accidental Release Measures

Personal precautions	Use trained responders, suitable splash protection and respiratory equipment appropriate to the exposure. Isolate the area and approach from upwind.
Environment	Dike or contain the leak. Prevent release to drains, especially acidic sewers, and to waterways.
Recovery	Absorb with an inert compatible material and place in labelled compatible waste containers. Keep cleanup liquid contained and arrange licensed disposal.

7. Handling and Storage

Handling	Use controlled transfer and effective ventilation. Avoid generating mist and prevent contamination of the work area.
Storage	Keep tightly closed in a cool, dry, well-ventilated area away from acids, strong oxidizers and heat. Use compatible containers, protect closures from damage and prevent release to acidic drains.
Incompatibilities	Mineral acids, acid-containing mixtures and strong oxidizing agents.
Specific use	Evaluate compatibility and appropriate operating conditions in the complete formulation before industrial use.

8. Exposure Controls / Personal Protection

Exposure limits	The source lists sodium hydroxide ceiling 2 mg/m ³ ; no active-component limit is established. Apply current local workplace limits, especially for hydrogen sulfide release.
Engineering controls	Use local extraction where mist can be generated. Maintain accessible eyewash and emergency washing facilities.
Personal protection	Wear chemical-resistant gloves selected for the task, suitable protective clothing and splash goggles. Add face protection for splash-prone tasks.
Respiratory protection	Use a properly selected respirator under a respiratory-protection program where engineering controls do not adequately limit airborne exposure.
Hygiene	Wash after handling, remove contaminated clothing promptly and do not eat, drink or smoke in the work area.

9. Physical and Chemical Properties

Appearance	Faint yellow to yellow-brown liquid
Formula / molecular weight	C ₈ H ₁₈ NaO ₂ PS ₂ / 264.32 g/mol
Physical form, reference	Yellow to dark-brown aqueous solution
pH, reference	10–13
Density, reference	1.105 at 25°C
Flash point, reference	>93°C
Freezing point, reference	Below –21°C
Water solubility	Complete
Other properties	Product-specific values for odor threshold, vapor pressure, partition coefficient, autoignition temperature and viscosity are not supplied by the selected reference set. No values are inferred.

10. Stability and Reactivity

Stability	Stable under appropriate closed, cool storage conditions.
Hazardous reactions	Contact with acids can produce toxic, flammable hydrogen sulfide.
Conditions to avoid	Heat, acid contamination, strong oxidizer contact and uncontrolled mist generation.
Incompatibilities	Mineral acids, acid-containing mixtures and strong oxidizing agents.
Decomposition	Hydrogen sulfide, sulfur oxides, carbon oxides and phosphorus-containing oxides may be released during acid contact or combustion.

11. Toxicological Information

Exposure effects	Eye and skin burns, irritation and respiratory effects may occur. Acid contact can release hydrogen sulfide, which can cause collapse and respiratory failure; the sense of smell can be disabled by exposure.
Reference classification	Reference reports corrosive skin and eye burns under legacy WHMIS Class E and D2B. No exact modern GHS skin-corrosion subcategory is assigned by that source; the communication summary preserves the corrosive hazard.
Toxicological data	The source reports active-component estimated oral rat LD ₅₀ >5,000 mg/kg and dermal rabbit LD ₅₀ >2,000 mg/kg. Direct contact can cause skin corrosion and eye burns. No complete chronic-effect profile is available.

12. Ecological Information

Environmental effects	Reference fish LC50 >125 mg/L at 96 h and Daphnia EC50 132 mg/L at 48 h. Detailed persistence, mobility and bioaccumulation results are not supplied. Prevent uncontrolled environmental discharge.
Controls	Prevent uncontrolled release, collect spills and dispose of contaminated material through an authorized route.
Assessment	No product-specific PBT/vPvB assessment is claimed. Absence of data does not establish absence of environmental effects.

13. Disposal Considerations

Product	Collect surplus product and contaminated cleanup material for disposal by an authorized chemical-waste contractor in accordance with local requirements.
Packaging	Containers may retain product residues. Do not reuse contaminated packaging without an approved cleaning process; use an authorized disposal route.

14. Transport Information

Classification	Class 8 — Corrosive
UN number	UN 1719
Shipping name	Caustic alkali liquid, n.o.s. (sodium diisobutyl dithiophosphate)
Class / packing group	DOT / IMDG / ICAO-IATA / TDG commercial reference: Class 8, packing group II, UN 1719.
Transport precautions	Protect packaging and closures from damage, secure loads and prevent releases. This reference is not a shipping declaration for a specific consignment.

15. Regulatory Information

Identity	Sodium Diisobutyl Dithiophosphate; CAS 53378-51-1; EC 258-508-5
HS reference	292019; reference heading rather than a destination customs ruling.
Compliance	Apply applicable workplace, environmental and transport rules. A raw-material listing does not establish authorization for a finished disinfectant or biocidal product.
Assessment	No ZXCHEM-specific chemical safety assessment or destination registration is asserted.

16. Other Information

Hazard meanings	Corrosive: causes burns to eyes and skin. Contact with acids can release toxic and flammable hydrogen sulfide. The source does not supply numbered GHS statements or subcategory test results.
Limitations	Prepared as reference safety information for the identified material. It is not a batch analytical certificate or safety assessment of a different solvent-containing formulation.
Revision	2026.2; prepared 2026-10-06. Customer-document branding and title corrected; technical safety data retained.
Document scope	Reference safety information for the material and grade described in Sections 1 and 3. Different concentrations, solvents or formulations require the applicable safety information. This is not a batch analytical certificate.

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