

## Material Safety Data Sheet

### Section 1 – Chemical Product and Company Identification

**MSDS Name:** (S)-(-)-BINAP  
**Synonyms:** (S)-(-)-2,2'-Bis(diphenylphosphino)-1,1'-binaphthyl  
**Company Identification:** Shanghai PI Chemicals Ltd.  
Room 6-306, Building 2  
1341 Pudong South Road  
Pudong New Area, Shanghai 200212, China  
**Telephone Number:** 86-21-51389368  
**Fax Number:** 86-21-51389367  
**Emergency Number:** 86-21-51389369

### Section 2 – Product Information

**Catalog Number:** PI-10353-  
**CAS #:** 76189-56-5  
**MDL #:** MFCD00010805  
**Purity:** 98.0%  
**EINECS#** Unlisted

### Section 3 – Physical and Chemical Properties

**Physical state:** Crystalline powder  
**Color:** White to off-white  
**Odor:** Not available  
**Molecular Formula:**  $C_{44}H_{32}P_2$   
**Molecular Weight:** 622.68  
**Freezing/Melting Point:** 239-242°C  
**Boiling Point:** Not available  
**Flash Point:** Not available  
**Autoignition Temperature:** Not available  
**Refractive Index (nD20):** Not available  
**Density:** Not available  
**Decomposition Temperature:** Not available  
**Solubility:** Not available

### Section 4 – Hazards Identification

- Eye:** Causes eye irritation.
- Skin:** Causes skin irritation. Harmful if absorbed through the skin.
- Ingestion:** May cause irritation of the digestive tract. Toxic if swallowed.
- Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

## Section 5 – First Aid Measures

- Eye:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
- Skin:** Get medical aid. Flush skin with plenty of water and soap for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops and persists.
- Ingestion:** Get medical aid immediately. Wash mouth out with water.
- Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

## Section 6 – Stability and Reactivity

- Chemical Stability:** Air sensitive.
- Materials to avoid:** Strong oxidizing agents.
- Conditions to Avoid:** Incompatible materials, light, exposure to air.
- Hazardous Decomposition Products:** Carbon monoxide, oxides of phosphorus, carbon dioxide.
- Hazardous Polymerization:** Has not been reported.

## Section 7 – Handling and Storage

- Handling:** Avoid breathing dust, vapor, mist, or gas. Keep container tightly closed. Avoid contact with skin and eyes. Wash thoroughly after handling. Mechanical exhaust required.
- Storage:** Store in a cool, dry place. Store in a tightly closed container. Store under nitrogen

## Section 8 – Personal Protection

- Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Skin:** Wear appropriate protective gloves to prevent skin exposure.
- Clothing:** Wear appropriate protective clothing to prevent skin exposure.
- Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 – Fire and Explosion Hazard Data

**General Information:** As in any fire, wear a self-contained breathing apparatus, MSHA/NIOSH (approved or equivalent) and protective clothing to prevent contact with skin and eyes.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or appropriate foam.

## Section 10 – Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container.

## Section 11 – Toxicological Information

**RTECS#:** CAS# 76189-56-5: None listed

**LD50/LC50:** RTECS: Not available

**Carcinogenicity:** (S)-(-)-BINAP - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

## Section 12 – Environmental information

Not available

## Section 13 – Disposal Consideration

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations.

## Section 14 – Transport Information

Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport

## Section 15 – Regulatory Information

### European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: Xi

Indication of Danger: Irritant

Risk Phrases:

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face protection.

WGK (Water Danger/Protection)

CAS#76189-56-5: 3

Canada

CAS#76189-56-5: Not available

**US Federal**

**TSCA**

CAS# 76189-56-5 is not listed on the TSCA Inventory. It is for research and development use only.

## Section 16 – Additional Information

**MSDS Creation Date:** 03/07/2007

**Update:** Original

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