



# NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.  
Email:marketing01@newayphc.com; Phone:+86-021-50350029 <https://www.newayphc.com>

## Safety Data Sheet (MSDS)

(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards)

**Product Name: Timolol Maleate** Revision Date: 20 FEB 2026

### SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

#### 1.1 Product Identifiers

- Product Name: Timolol Maleate
- Product Number: TM-20260220
- Brand: SIGALD
- CAS-No.: 26839-75-8
- Synonyms: (S)-1-[(1,1-Dimethylethyl)amino]-3-[[4-(4-morpholinyl)-1,2,5-thiadiazol-3-yl]oxy]-2-propanol maleate; Timolol maleate salt

#### 1.2 Details of the supplier of the safety data sheet

- Company: NEWAY SINOPHC TECH. LIMITED
- Address: RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
- Telephone: +86-021-50350029
- Fax: +86-021-50350029

#### 1.3 Emergency telephone

- Emergency Phone #: +86-021-50350029 (CHEMTREC)

#### 1.4 Relevant Identified Uses and Uses Advised Against

- Identified Uses: Pharmaceutical intermediate for beta-blocker drugs; raw material for ophthalmic eye drops (glaucoma) and oral cardiovascular formulations (hypertension/arrhythmia); pharmaceutical R&D reference reagent for cardiovascular and ophthalmology pharmacology research.
- Uses Advised Against: Not for direct human use in raw form; no non-pharmaceutical industrial use; avoid use in cosmetics/food products; do not use in unformulated ophthalmic/cardiovascular preparations for clinical use.

### SECTION 2: Hazards Identification

| Summary of Emergency Measures | White crystalline powder. Harmful if swallowed. Causes mild skin irritation and serious eye irritation. May cause respiratory irritation in sensitive individuals. After inhalation: Move to fresh air and rest. In case of skin contact: Rinse with plenty of water and mild soap for 5-10 minutes. After eye contact: Rinse with plenty of water for at least 15 minutes and call a doctor. After swallowing: Rinse mouth with water, do not induce vomiting; consult a doctor if unwell. Non-combustible. No explosion risk. | | --- |

#### 2.1 GHS Classification

- Acute toxicity, oral (Category 4); Skin irritation (Category 2); Serious eye irritation (Category 2); Specific target organ toxicity - single exposure (Cardiovascular system, Category 3)

#### 2.2 GHS Label Elements

- Hazard Pictogram: (Exclamation mark)



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- Signal Word: **Warning**
- Hazard Statements:
  - H302: Harmful if swallowed
  - H315: Causes skin irritation
  - H319: Causes serious eye irritation
  - H335: May cause respiratory irritation
  - H373: May cause damage to organs (Cardiovascular) through prolonged or repeated exposure
- Precautionary Statements:
  - P264: Wash skin thoroughly after handling
  - P270: Do not eat, drink or smoke when using this product
  - P280: Wear protective gloves/eye protection/face protection
  - P301+P312: If swallowed: Call a POISON CENTER or doctor/physician if you feel unwell
  - P302+P352: If on skin: Wash with plenty of water and soap
  - P305+P351+P338+P312: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell
  - P332+P313: If skin irritation occurs: Get medical advice/attention
  - P405: Store locked up
  - P501: Dispose of contents/container to an approved waste disposal plant

## 2.3 Physical and Chemical Hazards

- Non-combustible; no explosive/oxidizing properties under normal storage and handling conditions. No hazardous polymerization will occur.
- Acute: Swallowing causes hypotension, bradycardia, dizziness; skin contact leads to redness, itching and erythema; eye contact causes severe conjunctival redness, corneal irritation and blurred vision; dust inhalation causes cough, chest tightness in sensitive individuals.

- Chronic: Prolonged exposure may cause mild cardiovascular dysfunction (hypotension, arrhythmia), reversible with strict protective measures and symptomatic treatment.

## 2.5 Environmental Hazards

- Low acute toxicity to aquatic organisms (96h LC<sub>50</sub> = 450 mg/L for zebrafish); fully biodegradable in natural environment; low bioaccumulation potential with no persistent residues.

## 2.6 Other Hazards

- No additional hazards identified based on current scientific data.

## SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: **Pure Substance** | 3.1 Main Components | Timolol Maleate (100%) | | --- | ---  
| | Formula | C<sub>17</sub> H<sub>24</sub>N<sub>4</sub>O<sub>3</sub>·C<sub>4</sub>H<sub>4</sub>O<sub>4</sub> | | Molecular Weight | 432.45 g/mol | | CAS-No.: | 26839-75-8 | | EC-No.: | N/A |

Hazardous Ingredients



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表格

Component	Classification	Concentration (w/w)
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Timolol Maleate GHS Category 4/2/2/3 100%

## SECTION 4: First Aid Measures

### 4.1 Description of First-Aid Measures

- If Inhaled: Move the victim to fresh air immediately, keep at rest in a comfortable breathing position. Monitor heart rate and blood pressure; call a doctor if chest tightness or dizziness occurs.
- In Case of Skin Contact: Immediately remove all contaminated clothing and shoes. Rinse skin with plenty of running water and mild soap for 5-10 minutes. Seek medical advice if irritation/rash persists for more than 24 hours.
- In Case of Eye Contact: **IMMEDIATE MEDICAL ATTENTION RECOMMENDED**. Hold eyelids open and rinse thoroughly with plenty of running water for at least 15 minutes. Remove contact lenses if present. Do not rub eyes. Call a POISON CENTER/ophthalmologist if irritation or blurred vision occurs.
- If Swallowed: Rinse mouth with water. Do not induce vomiting unless directed by a doctor. Monitor cardiovascular status (blood pressure, heart rate); call a POISON CENTER/doctor immediately if hypotension, bradycardia or dizziness occurs.

### 4.2 Most Important Symptoms and Effects

- Acute: Hypotension, bradycardia, dizziness, headache (swallowed); skin erythema, pruritus (contact); severe eye irritation, blurred vision (contact); cough, chest tightness (inhalation).
  - Delayed: Mild cardiovascular dysfunction may occur 24-48 hours after excessive ingestion; reversible with symptomatic treatment.
- ### 4.3 Indication of Immediate Medical Attention
- Severe swallowing exposure with persistent cardiovascular symptoms, severe eye contact, prolonged respiratory irritation require **immediate professional medical attention**.

## SECTION 5: Firefighting Measures

### 5.1 Extinguishing Media

- Suitable Extinguishing Media: Water spray, foam, carbon dioxide (CO<sub>2</sub>), dry chemical powder.
- Unsuitable Extinguishing Media: No limitations of extinguishing agents.

### 5.2 Special Hazards Arising from the Substance

- Non-combustible; slight decomposition at high temperature (>290°C) produces low-toxic nitrogen-containing and sulfur-containing fumes; no toxic/explosive gases released under normal fire conditions.

### 5.3 Advice for Firefighters

- Wear self-contained breathing apparatus (SCBA) and full chemical-resistant fire-fighting protective gear if decomposition fumes occur during fire.
- Keep a safe distance from the fire scene; prevent fire-extinguishing water from entering municipal sewers or natural water bodies.
- Monitor cardiovascular status of firefighters after exposure to decomposition fumes.

## SECTION 6: Accidental Release Measures

### 6.1 Personal Precautions

- Wear N95 dust mask, chemical-resistant nitrile gloves, safety goggles and impermeable lab coat. Ensure good ventilation at the spill site and evacuate all non-essential personnel.
- Avoid inhaling dust and prolonged contact with spilled powder; clean up immediately to prevent dust spreading.

### 6.2 Environmental Precautions

- Prevent spilled powder from entering sewers, rivers, lakes or soil. Cover the spill with inert material (sand/vermiculite) to avoid dust spreading and environmental contamination.

### 6.3 Methods and Materials for Containment and Cleaning Up

- Small Spill: Gently sweep up with a clean dry brush, collect into a sealed HDPE plastic container for professional hazardous waste disposal. Do not blow or vacuum the powder.
- Large Spill: Contain the spill with sandbags/dikes, transfer to a sealed HDPE drum with clear hazard labels, and hand over to a licensed hazardous waste treatment company. Do not wash the spill into drains or water bodies.

6.4 Reference to Other Sections For waste disposal, see Section 13.

## SECTION 7: Handling and Storage

### 7.1 Precautions for Safe Handling

- Operate in a well-ventilated dust-free negative pressure fume hood; use dust-free operation tools to avoid generating dust during weighing and mixing.
- Wear the specified PPE for all handling operations; no eating, drinking, smoking or phone use in the work area.
- Wash hands, face and exposed skin thoroughly with soap and water after handling; keep the work area clean and dry.
- Avoid contact with strong acids, strong bases, oxidizing agents and high-temperature environments; do not mix with other pharmaceutical raw materials without professional guidance.

### 7.2 Conditions for Safe Storage

- Storage Conditions: Store in a **cool, dry, dark and locked** pharmaceutical warehouse. Temperature  $\leq 25^{\circ}\text{C}$ , relative humidity  $\leq 60\%$ . Keep the container tightly sealed with aluminum foil to prevent hygroscopy, light degradation and contamination.
- Incompatibilities: Strong acids ( $\text{HCl}$ ,  $\text{H}_2\text{SO}_4$ ), strong bases ( $\text{NaOH}$ ,  $\text{KOH}$ ), oxidizing agents ( $\text{H}_2\text{O}_2$ ,  $\text{KMnO}_4$ ), heavy metal salts, cardiovascular pharmaceutical excipients with opposite effects.
- Storage Class (TRGS 510): 6 (Toxic Solids with Irritant Properties)
- Shelf Life: 36 months (unopened, under the specified storage conditions).
- Segregation: Store separately from all other pharmaceutical raw materials, food, feed and cosmetics; place in a dedicated toxic substance storage area with warning signs; store away from cardiovascular drugs of other types.

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control Parameters

- Occupational Exposure Limit (OEL): No official national/international OEL; internal strict control limit: 0.04 mg/m<sup>3</sup> (8-hour TWA, dust) (due to cardiovascular/irritant effects).
- Biological Limit Value (BLV): N/A.
- 8.2 Exposure Controls
- Engineering Controls: Local exhaust ventilation (LEV) with high-efficiency particulate air (HEPA) filter for all dust-generating operations; dust collection system with emission concentration ≤ 0.02 mg/m<sup>3</sup>.
- Personal Protective Equipment (PPE):
  - Eye/Face Protection: Chemical-resistant safety goggles (mandatory for all operations); full face shield for large-scale handling.
  - Skin Protection: Chemical-resistant nitrile rubber gloves (thickness ≥ 0.20 mm), impermeable anti-chemical lab coat, protective shoe covers.
  - Respiratory Protection: N95 dust mask for routine small-scale operations; powered air-purifying respirator (PAPR) for large-scale weighing/mixing.
  - Hand Protection: Replace gloves immediately if damaged, punctured or contaminated; change gloves every 2 hours for continuous operation.

## SECTION 9: Physical and Chemical Properties

9.1 Basic Physical and Chemical Properties

a) Physical State: Solid (crystalline powder)

b) Color: White to off-white

c) Odor: Practically odorless

d) Melting Point/Freezing Point: 197-203°C

e) Boiling Point: Not applicable (decomposes before boiling)

f) Flammability: Non-combustible

g) Flammability Limits: Not applicable

h) Flash Point: Not applicable

i) Autoignition Temperature: > 450°C

j) Decomposition Temperature: ≥290°C (mild decomposition, produces low-toxic fumes)

k) pH Value: 3.8-5.5 (1% aqueous solution, 25°C)

l) Viscosity: Not applicable (solid)

m) Solubility: Freely soluble in water, methanol, ethanol; slightly soluble in acetonitrile; insoluble in chloroform, ether, hexane

n) Partition Coefficient (log P, n-octanol/water): 0.8 (25°C)

o) Vapor Pressure (25°C): < 0.0001 hPa

p) Density (25°C): 1.35-1.39 g/cm<sup>3</sup> (bulk density)

q) Particle Size: 95% passing 100 mesh

r) Explosive Properties: Not explosives

s) Oxidizing Properties: None

t) Hygroscopy: Slightly hygroscopic, sensitive to light

## SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under the recommended storage conditions (≤25°C, dry, dark, sealed); stable under standard pharmaceutical processing temperature (≤60°C).

10.2 Possibility of Hazardous Reactions: No hazardous reactions under normal pharmaceutical use and processing conditions; stable in neutral/weakly acidic aqueous solution, mild hydrolysis in strong alkaline environment.

10.3 Conditions to Avoid: High temperature (>290°C), direct sunlight/ultraviolet light, high humidity, contact with incompatible materials, strong mechanical shock, strong alkaline environment.

10.4 Incompatible Materials: Strong acids, strong bases, oxidizing agents, heavy metal salts, reducing agents, alkaline pharmaceutical

excipients, beta-agonist cardiovascular drugs.10.5 Hazardous Decomposition Products: Carbon dioxide, water vapor, low-toxic nitrogen-containing and sulfur-containing fumes (at high temperature complete combustion/decomposition); non-toxic Timolol derivatives produced by alkaline hydrolysis.

## SECTION 11: Toxicological Information

### 11.1 Toxicological Effects

- Acute Toxicity (**non-selective beta-adrenergic blocker pharmaceutical intermediate**):
  - Oral (Rat, LD<sub>50</sub>): 850 mg/kg (Harmful)
  - Dermal (Rabbit, LD<sub>50</sub>): > 2000 mg/kg (Non-hazardous)
  - Inhalation (Rat, LC<sub>50</sub>): 6.5 mg/m<sup>3</sup> (4-hour exposure, Harmful)
- Skin Corrosion/Irritation: Rabbit 4-hour closed patch test - moderate redness, edema and rash (Category 2), reversible within 7 days with treatment.
- Eye Irritation/Damage: Rabbit eye test - severe conjunctival redness and mild corneal opacity (Category 2), reversible with treatment within 48 hours.
- Respiratory Irritation: Rat inhalation test - mild bronchial irritation, cough at low dust concentrations ( $\geq 0.30$  mg/m<sup>3</sup>), no persistent respiratory damage.
- Mutagenicity: Ames test, chromosome aberration test - negative; no mutagenic effects.
- Carcinogenicity: IARC Classification - Group 3 (not classifiable as to carcinogenicity to humans).
- Reproductive Toxicity: No adverse reproductive/developmental effects in animal tests at clinical relevant doses; use with caution in pregnant women under clinical monitoring.
- Specific Target Organ Toxicity: **Cardiovascular system** is the main target organ; oral administration causes hypotension, bradycardia at clinical doses; no damage to other organs with standard protective measures.
- Allergenicity: No significant sensitizing effects in animal tests and clinical research data.

## SECTION 12: Ecological Information

### 12.1 Toxicity

- Fish (Zebrafish, 96h LC<sub>50</sub>): 450 mg/L
- Daphnia (48h EC<sub>50</sub>): 430 mg/L
- Freshwater Algae (72h EC<sub>50</sub>): 480 mg/L

12.2 Persistence and Degradability: Biodegradable (BOD<sub>5</sub>/COD = 0.65); degraded by microorganisms in aquatic and soil environments within 16-20 days, no persistent residues.

12.3 Bioaccumulative Potential: Low (log P = 0.8); no significant bioaccumulation in aquatic organisms and food chain.12.4 Mobility in Soil: Moderate mobility; weak adsorption to soil organic matter (Koc = 120), slight leaching risk to groundwater (mitigated by biodegradation).12.5 PBT/vPvB Assessment: Not classified as PBT/vPvB substances.

12.6 Other Adverse Effects: No known adverse effects on soil microorganisms and terrestrial plants at low concentrations; high concentration may inhibit the growth of aquatic beneficial bacteria (temporary, reversible).



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## SECTION 13: Disposal Considerations

### 13.1 Waste Treatment Methods

- Product Waste: Contaminated/expired product is classified as **toxic hazardous waste**; must be disposed of by licensed hazardous waste treatment facilities via high-temperature incineration ( $\geq 800^{\circ}\text{C}$ ) with flue gas treatment (to remove nitrogen-containing and sulfur-containing fumes).
- Packaging Waste: Rinse packaging with water and ethanol to remove residual powder, then dispose of as toxic hazardous waste; do not recycle or reuse any contaminated packaging.
- Unused Product: Do not discharge to the environment; incinerate with professional waste treatment companies in accordance with local national and international toxic waste regulations.
- Disposal Compliance: Comply with national and local hazardous waste disposal regulations (e.g., China HW02, EU EWC 080102, US RCRA Subtitle C).

## SECTION 14: Transport Information

14.1 UN Number: ADR/RID: 2811; IMDG: 2811; IATA-DGR: 2811

14.2 UN Proper Shipping Name: Toxic solid, organic, n.o.s. (Timolol Maleate)

14.3 Transport Hazard Class: 6.1 (Toxic substances)

14.4 Packaging Group: III (Minor hazard)

14.5 Environmental Hazards: IMDG Marine Pollutant: **No**

- Transport in sealed HDPE pharmaceutical-grade drums with aluminum foil inner lining and locked cover; affix standard Class 6.1 toxic hazard labels and product identification labels (mark beta-blocker/cardiovascular/ophthalmic/irritant risk warning).
- Transport temperature  $\leq 30^{\circ}\text{C}$ ; avoid direct sunlight, rain, collision, extrusion and rough handling during transport (light protection mandatory).
- Do not transport with food, feed, cosmetics, aquatic products and alkaline pharmaceutical raw materials; transport in a dedicated compartment of specialized hazardous chemical vehicles; separate from beta-agonist drugs.
- Comply with ADR/RID, IMDG Code and IATA-DGR transport regulations for Class 6.1 toxic substances; provide MSDS and transport approval documents for customs clearance; attach a warning note for cardiovascular/ophthalmic intermediate and irritant risk.

## SECTION 15: Regulatory Information

### 15.1 National/International Regulations

- China: Hazardous Chemicals Safety Management Regulation (Class 6.1 toxic chemical); Pharmaceutical Raw Material Registration Requirements for medical intermediates; Chinese Pharmacopoeia (CP) 2025 edition compliance; Special Control of Toxic Chemicals Regulations.
- EU: REACH (Annex XVII compliant; not in SVHC Candidate List); CLP (GHS classification as Warning); European Pharmacopoeia (EP) 10.0 compliance; ADR/RID Class 6.1 transport regulations.



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- US: TSCA (listed on the TSCA Inventory); DOT Class 6.1 toxic material; FDA (compliant with pharmaceutical intermediate quality standards for cardiovascular/ophthalmic drugs); United States Pharmacopeia (USP) 47 compliance; RCRA toxic waste regulations.
- Japan: JP 17 compliance; Japanese Pharmaceutical Affairs Law; Japanese Poisonous and Deleterious Substances Control Law.15.2 Additional Regulatory Requirements
- Provide English MSDS, COA and toxic chemical transport approval documents for customs clearance; apply for a special hazardous chemical storage license for on-site storage; provide product quality test reports and pharmacopoeia compliance certificates for pharmaceutical production use; mark beta-blocker, cardiovascular and ophthalmic characteristics on all product documents.

### SECTION 16: Other Information

- Further Information: This MSDS is based on current scientific and regulatory knowledge, complying with GB/T 16483, GB/T 17519 and GHS Rev.9 standards. It is for professional occupational health and safety use only for trained operators, transport personnel and storage managers. Key characteristic: **non-selective beta-blocker cardiovascular/ophthalmic pharmaceutical intermediate, mild cardiovascular toxicity, low environmental toxicity.**
- Revision Date: 20 FEB 2026

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