

Safety Data Sheet (MSDS)

- Benzyl Benzoate

According to: GB/T 16483, GB/T 17519; GHS, IMDG, IATA Standards **Product Name:** Benzyl Benzoate **CAS Number:** 120-51-4 **Product Number:** BB-20260226 **Brand:** SIGALD **Revision Date:** 26 February 2026 **Supplier:** NEWAY SINOPHC TECH. LIMITED **Address:** RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE. **Tel/Fax:** +86-021-50350029 **Emergency Phone:** +86-021-50350029 (CHEMTREC)

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

1.1 Product Identifiers

- Product Name: Benzyl Benzoate
- Synonyms: Benzoic acid benzyl ester; Benzyl phenylformate
- CAS-No.: 120-51-4
- EC-No.: 204-402-9
- Product Number: BB-20260226
- Brand: SIGALD

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses:** Cosmetic fragrance fixative/solvent; pharmaceutical acaricide/solvent; industrial plasticizer/solvent; paint/coating solvent; textile processing aid.
- **Uses Advised Against:** Not for direct oral consumption in large quantities; not for use in food (non-food contact grade); not for use as a fuel or refrigerant.

SECTION 2: Hazards Identification

2.1 GHS Classification

- Eye irritation: Category 2 (Mild irritation, reversible)
- Skin irritation: Category 2 (Mild irritation, reversible)
- Specific target organ toxicity (single exposure) - Narcotic effects: Category 3 (May cause drowsiness or dizziness)

2.2 GHS Label Elements

- **Hazard Pictogram:** (Warning)
- **Signal Word:** WARNING
- **Hazard Statements:**
 - H315: Causes skin irritation
 - H319: Causes serious eye irritation
 - H336: May cause drowsiness or dizziness
- **Precautionary Statements:**
 - P261: Avoid breathing dust/fume/gas/mist/vapors/spray
 - P264: Wash skin thoroughly after handling
 - P280: Wear protective gloves/eye protection/face protection
 - P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 - P332+P313: If skin irritation occurs: Get medical advice/attention
 - P370+P378: In case of fire: Use dry powder, CO₂ or foam for extinction

2.3-2.6 Hazards Summary

- **Physical/Chemical Hazards:** Combustible liquid (flash point $\geq 140^{\circ}\text{C}$); no explosion risk; no hazardous polymerization under normal use; solidifies at low temperature ($<18^{\circ}\text{C}$), no hazard.
- **Health Hazards:** Mild skin/eye irritation; high concentration inhalation may cause drowsiness/dizziness; no acute toxic effects at normal use dosage; no carcinogenic/mutagenic/reproductive toxicity.



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- **Environmental Hazards:** Slightly toxic to aquatic organisms; low bioaccumulation potential; biodegradable in natural aerobic environment.
- **Other Hazards:** No additional hazards identified; solidification at low temperature is a physical change, no effect on product performance after melting.

SECTION 3: Composition/Information on Ingredients

- **Substance/Mixture:** Pure substance
- **Active Ingredient:** Benzyl Benzoate (CAS 120-51-4), Assay $\geq 99.0\%$ (industrial grade) / $\geq 99.5\%$ (cosmetic grade)
- **Impurities:** Trace water ($<0.1\%$), benzyl alcohol ($<0.3\%$), benzoic acid ($<0.2\%$); no hazardous ingredients
- **Concentration of Hazardous Ingredients:** 0% (all impurities are non-hazardous)

SECTION 4: First Aid Measures

4.1 First-Aid Measures

- **If Inhaled:** Move to fresh air; rest in a position comfortable for breathing. If dizziness/drowsiness or coughing occurs, get medical advice and avoid physical activity.
- **In Case of Skin Contact:** Remove contaminated clothing and shoes; rinse skin with plenty of soap and water for 5-10 minutes. Wash contaminated clothing before reuse.
- **In Case of Eye Contact:** Rinse eyes thoroughly with plenty of running water for 10-15 minutes, holding eyelids open. Remove contact lenses if present. Consult a doctor if irritation, redness or blurred vision persists.
- **If Swallowed:** Rinse mouth with water; do not induce vomiting. Drink a glass of water or milk if conscious and alert. Get medical advice immediately if nausea, vomiting or abdominal pain occurs.

4.2-4.4 Symptoms and Medical Notes

- **Acute Effects:** Skin redness/itching; eye redness/tearing/burning; dizziness/drowsiness (high concentration inhalation); mild gastrointestinal discomfort (if swallowed).
- **Delayed Effects:** No known delayed toxic effects based on current data.
- **Medical Notes:** Inform physician of the product name and CAS number if medical consultation is required; treat symptomatically; no specific antidote available.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable:** Dry powder, carbon dioxide (CO₂), foam, water spray (cool container only).
- **Unsuitable:** High-pressure water jet (may spread burning liquid; ineffective for fire extinguishing).

5.2 Special Hazards Arising from the Substance

- Combustible liquid; burning may produce non-hazardous carbon oxides (CO, CO₂) and faint aromatic smoke; no toxic or explosive combustion products.
- No explosive vapor-air mixture formation under normal use and storage conditions.

5.3 Advice for Firefighters

- Wear standard fire-fighting gear (helmet, fire suit, self-contained breathing apparatus) for large fires to avoid inhalation of combustion fumes.
- Cool exposed containers with water spray to prevent thermal expansion and leakage; continue cooling after fire is extinguished.
- Fight fire from upwind and a safe distance; avoid contact with burning liquid and combustion products.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

- Wear nitrile rubber gloves, safety glasses and protective lab coat for spill handling; wear a face shield if large splashing is possible.



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- Ensure good ventilation in the spill area; avoid breathing vapors, especially in confined spaces.
- Evacuate non-essential personnel from the spill area for large leaks.

6.2 Environmental Precautions

- Prevent spilled liquid from entering sewers, rivers, lakes and other water bodies (use sand/vermiculite to contain and absorb).
- Do not discharge contaminated waste directly into the environment; collect and treat according to local regulations.

6.3 Containment and Cleaning Up

- **Small Spill:** Absorb with inert materials (sand, vermiculite, diatomaceous earth); place the absorbed waste in sealed containers for disposal. Wipe the area with ethanol and ventilate fully until no odor remains.
- **Large Spill:** Contain with dikes to prevent spread; transfer the spilled liquid to sealed drums with a pump for recycling or disposal. Flush the contaminated area with water (collect wastewater for biological treatment).
- **Solidified Spill (low temperature):** Melt at 25-30°C with gentle heating (no open flame), then clean up according to the above methods.

6.4 Reference

- Disposal see Section 13; personal protection see Section 8.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a well-ventilated area; avoid breathing vapors and direct contact with skin/eyes.
- Use dedicated dispensing equipment; avoid mixing with strong acids, strong bases, oxidizing agents and reducing agents.
- Wash hands thoroughly with soap and water after handling; do not eat/drink/smoke in the work area.
- Avoid low temperature (<15°C) during handling to prevent solidification; if solidified, melt at 25-30°C with water bath heating (no open flame).

7.2 Conditions for Safe Storage

- **Storage Conditions:** Store in a cool, dark, well-ventilated warehouse at 15-25°C; use brown glass or stainless steel containers; keep tightly sealed. Avoid direct sunlight, low temperature (<15°C) and high temperature (>30°C); keep away from open flame and heat sources.
- **Incompatibilities:** Strong acids (pH <3), strong bases (pH >10), oxidizing agents (e.g., hydrogen peroxide, chlorine), strong reducing agents, halogens.
- **Storage Class (TRGS 510):** 3 (Combustible Liquids, low hazard)
- **Shelf Life:** 24 months (unopened, under specified storage conditions); melted solidified product has no performance degradation.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- Occupational Exposure Limit (OEL): TWA 5 mg/m³ (air) (recommended); no official national/international mandatory limit.
- Biological Exposure Indices: No relevant data available.

8.2 Exposure Controls

- **Engineering Controls:** Local exhaust ventilation (for large-scale dispensing and heating operations); general ventilation for routine handling to maintain low vapor concentration.
- **Personal Protective Equipment (PPE):**
 - Eye/Face Protection: Safety glasses (routine handling); face shield (large-scale spill/dispensing/heating).

- Skin Protection: Nitrile rubber gloves (thickness ≥ 0.1 mm), protective lab coat and anti-slip shoes; avoid latex gloves (poor compatibility).
- Respiratory Protection: Half-face respirator with organic vapor cartridge (high concentration vapor/poor ventilation); no respirator required for normal use.
- **Hygiene Measures:** Dedicated hand washing station with soap and water near the work area; provide emergency eye wash and shower facilities for large-scale operation areas.

SECTION 9: Physical and Chemical Properties

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Property	Value (25°C)	Unit
Physical State	Liquid	-
Color	Colorless to pale yellow	-
Odor	Faint aromatic scent	-
Melting Point	18-21	°C
Boiling Point	323-325	°C
Flash Point (Closed Cup)	≥ 140	°C
Autoignition Temperature	> 400	°C
Relative Density	1.118-1.122	g/cm ³
Refractive Index	1.5680-1.5720	-
Viscosity	12-18	mPa·s
Water Solubility	Insoluble (< 0.01 g/100 mL)	-
Solubility	Miscible with ethanol, ether, benzene, toluene, vegetable oil, mineral oil	-
Vapor Pressure	< 0.001	hPa
Flammability	Combustible liquid	-
Explosive Properties	Not explosive	-
Oxidizing Properties	None	-
Decomposition Temperature	> 250	°C

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

- Stable under recommended storage and use conditions (15-25°C, sealed, away from light); no decomposition or chemical change.
- Solidifies at $< 18^\circ\text{C}$ (physical change), melts back to liquid at 18-25°C with no performance change.

10.2 Possibility of Hazardous Reactions

- No hazardous reactions under normal use and storage conditions; no polymerization risk under any conditions.

10.3 Conditions to Avoid

- High temperature ($> 250^\circ\text{C}$), direct strong sunlight, open flame, contact with incompatible materials, prolonged exposure to high humidity.

10.4 Incompatible Materials

- Strong mineral acids (sulfuric acid, hydrochloric acid), strong alkalis (sodium hydroxide, potassium hydroxide), oxidizing agents (hydrogen peroxide, chlorine dioxide), strong reducing agents (sodium borohydride), halogens (chlorine, bromine).

10.5 Hazardous Decomposition Products

- Thermal decomposition at >250°C produces non-hazardous carbon oxides (CO, CO₂) and benzyl alcohol/benzoic acid vapor; no toxic or hazardous decomposition products.

SECTION 11: Toxicological Information

11.1 Toxicological Effects

- **Acute Toxicity:** Oral (Rat, LD₅₀) = 1700 mg/kg; Dermal (Rabbit, LD₅₀) = > 5000 mg/kg; Inhalation (Rat, LC₅₀) = > 1000 mg/m³ (4-hour exposure).
- **Skin Corrosion/Irritation:** Mild irritation (Rabbit, 4-hour exposure) – reversible redness, no corrosion or blistering.
- **Eye Damage/Irritation:** Mild to moderate irritation (Rabbit, 24-hour exposure) – redness/tearing, reversible within 72 hours, no permanent damage.
- **Sensitization:** No skin/respiratory sensitization (Guinea pig test).
- **Mutagenicity/Carcinogenicity:** No mutagenic effect (Ames test); not classified as carcinogenic by IARC, EPA or NTP.
- **Reproductive Toxicity:** No reproductive/developmental toxicity (Rat test) at normal dosage.
- **Target Organ Toxicity:** Single exposure may cause mild narcotic effects (drowsiness/dizziness) at high concentration; no target organ toxicity for repeated exposure at normal use dosage.
- **Aspiration Hazard:** Low (low vapor pressure, high flash point, high viscosity; no aspiration risk for normal use).

11.2 Additional Information

- The toxicological properties have been sufficiently studied; the product is safe for industrial, cosmetic and pharmaceutical use when used in accordance with the recommended dosage and safety precautions.

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, LC₅₀) = 750 mg/L (96-hour exposure)
- Daphnia (EC₅₀) = 550 mg/L (48-hour exposure)
- Algae (EC₅₀) = 900 mg/L (72-hour exposure)
- **Conclusion:** Slightly toxic to aquatic organisms; no acute aquatic toxicity at normal discharge levels.

12.2-12.7 Ecological Properties

- **Persistence and Degradability:** Biodegradable (BOD₅ /COD = 0.55) in 28 days under aerobic aquatic conditions; fully degraded in natural environment with no persistent residues.
- **Bioaccumulative Potential:** Low (log Kow = 3.8; no bioaccumulation in aquatic food chain).
- **Mobility in Soil:** Low mobility; binds to soil organic matter, no leaching risk to groundwater.
- **PBT/vPvB Assessment:** Not classified as PBT/vPvB according to GHS and EU regulations.
- **Endocrine Disrupting Properties:** No data available; no known endocrine disruption effect.
- **Other Adverse Effects:** No long-term adverse effects on terrestrial and aquatic ecosystems at normal use and discharge levels.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste:** Unused/expired product – incinerate in a licensed waste incineration plant (complete combustion to avoid smoke); or recycle for industrial use if qualified.
- **Contaminated Waste:** Spill absorbents (sand/vermiculite) – incinerate or dispose as non-hazardous waste according to local regulations.
- **Wastewater:** Contaminated wastewater – treat by biological wastewater treatment system (biodegradation) before discharge; comply with local effluent standards.
- **Packaging Waste:** Rinse packaging with ethanol (recycle the rinse liquid); glass/stainless steel packaging – recycle; plastic packaging – dispose as non-hazardous waste in a licensed facility.



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13.2 Disposal Notes

- Comply with local, national and international waste disposal regulations; do not dump waste directly into the environment, soil or water bodies.
- Cosmetic grade product waste shall be disposed separately from industrial grade waste if required by local regulations.

SECTION 14: Transport Information

14.1-14.5 Transport Classification

- UN Number: ADR/RID: -; IMDG: -; IATA-DGR: -
- UN Proper Shipping Name: Not dangerous goods (ADR/RID/IMDG/IATA)
- Transport Hazard Class: None
- Packaging Group: None
- Environmental Hazards: IMDG Marine Pollutant: No; ADR/RID/IATA: No

14.6-14.7 Transport Precautions

- **General:** Classified as non-hazardous goods; transport by ordinary closed vehicles (for combustible liquids).
- **Conditions:** Transport at 15-30°C; avoid direct sunlight, extreme temperature (<10°C or >35°C), open flame and collision.
- **Packaging:** Use sealed brown glass/stainless steel/HDPE drums; ensure no leakage; mark "Combustible Liquid" and "Keep Away from Heat" on the package.
- **Incompatibilities:** Do not transport with strong acids, strong bases, oxidizing agents, food and pharmaceutical raw materials (non-food/cosmetic grade).

SECTION 15: Regulatory Information

15.1 National & International Regulations

- **China:** Hazardous Chemical Safety Management Regulation (Non-hazardous classification); Cosmetic Safety Technical Specifications (2021) (cosmetic grade); Pharmaceutical Raw Material Quality Standards.
- **GHS (Rev.9):** Classification as per Section 2.1 (Skin/Eye Irritation, Narcotic Effects Cat 3).
- **EU (REACH):** Registered in ECHA; not listed in SVHC Candidate List; complies with CLP regulation.
- **US (TSCA):** Listed on TSCA Inventory; FDA compliant (cosmetic grade for cosmetic use).
- **International:** Complies with OECD chemical safety standards and IFRA fragrance ingredient standards (for fragrance fixative use).

15.2 Other Regulations

- Comply with local industrial chemical, cosmetic and pharmaceutical raw material regulations; industrial use shall meet occupational health and safety standards; food contact grade shall comply with food packaging material safety standards.

SECTION 16: Other Information

- **Further Information:** This MSDS is based on current scientific knowledge and complies with GB/T 16483, GB/T 17519 and GHS (Rev.9) standards. It is for the safe handling, storage, transport and disposal of the product.
- **Liability Note:** The supplier is not liable for any damage caused by improper use, non-compliance with safety precautions or use beyond the product's intended scope.
- **Update Note:** This MSDS will be updated in a timely manner if new scientific safety data becomes available.