Safety Data Sheet (MSDS)

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

Ethyl Decanoate (110-38-3)

Revision Date: 28 FEB 2026

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

1.1 Product Identifiers

- Product Name: Ethyl Decanoate
- Product Number: ED-20260228
- Brand: SIGALD
- CAS-No.: 110-38-3
- Synonyms: Ethyl caprate; Decanoic acid ethyl ester; n-Decanoic acid ethyl ester
- EINECS/EC-No.: 203-761-9

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: Food flavor ingredient (fruity, waxy flavor); fragrance/cosmetic raw material; industrial plasticizer; lubricant additive; organic synthesis intermediate.
- Uses Advised Against: Not for direct oral consumption in large quantities; avoid use in high-temperature open flame environments without protection; not for medical injection use.

SECTION 2: Hazards Identification

|Summary of Emergency Measures|Colorless clear liquid with characteristic fruity-waxy odor. Combustible liquid; may cause mild skin and eye irritation in sensitive individuals; may cause mild respiratory irritation if inhaled in high concentration. After inhalation: Move to fresh air and rest. In case of skin contact: Rinse with plenty of water for 5 minutes. After eye contact: Rinse with plenty of water for 10 minutes; consult a doctor if irritation persists. After swallowing: Rinse mouth with water, do not induce vomiting; seek medical advice if unwell. Keep away from fire and heat sources.| |---|

2.1 GHS Classification

- Flammable liquids (Category 4)
- Skin irritation (Category 2, mild, sensitive individuals)
- Serious eye irritation (Category 2, mild, sensitive individuals)
- Specific target organ toxicity - single exposure (respiratory tract irritation, Category 3)

2.2 GHS Label Elements

- Hazard Pictogram: (Exclamation mark)
- Signal Word: **Warning**
- Hazard Statements:
  - H227: Combustible liquid
  - H315: May cause skin irritation
  - H319: May cause serious eye irritation
  - H335: May cause respiratory irritation
- Precautionary Statements:
  - P210: Keep away from heat, sparks, open flames and hot surfaces. No smoking.
  - P261: Avoid breathing vapors/spray
  - P264: Wash skin thoroughly after handling
  - P280: Wear protective gloves/eye protection when handling
  - P302+P352: If on skin: Wash with plenty of water and soap
  - P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
  - P304+P340: If inhaled: Remove person to fresh air and keep comfortable for breathing
  - P312: Call a POISON CENTER or doctor/physician if you feel unwell
  - P362+P364: Take off contaminated clothing and wash it before reuse
  - P501: Dispose of contents/container to an approved waste disposal plant

2.3 Physical and Chemical HazardsCombustible liquid (flash point ≥108℃); low volatility, vapor may form flammable mixtures with air in high concentration; no explosive properties under normal conditions; stable under recommended storage conditions, no hazardous decomposition at normal temperature.

2.4 Health Hazards

- Acute: High-concentration vapor inhalation causes mild cough and throat irritation; skin contact may cause slight redness in sensitive individuals; eye contact may cause mild redness and tearing in sensitive individuals; accidental swallowing causes mild nausea and gastrointestinal discomfort.
- Chronic: Prolonged repeated skin contact may cause mild dryness in sensitive individuals; long-term inhalation of low-concentration vapor has no known persistent adverse effects; no carcinogenic, mutagenic or reproductive toxic effects in occupational exposure limits.

2.5 Environmental HazardsLow acute toxicity to aquatic organisms (Zebrafish 96h LC_{50} = 800-1200 mg/L); fully biodegradable in natural environment (BOD_5 /COD = 0.78); very low bioaccumulation potential; avoid direct large-scale discharge into water bodies or soil.

2.6 Other HazardsVapor is slightly heavier than air and may accumulate in low-lying areas with poor ventilation; no other additional hazards identified.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: **Pure Substance** | Component | CAS-No. | Formula | Concentration (w/w) | Classification | | --- | --- | --- | --- | --- | | Ethyl Decanoate | 110-38-3 | $C_{12}H_{24}O_2$ | ≥98.0% (Food/Fragrance ≥99.0%) | H227, H315, H319, H335 |

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- If Inhaled: Immediately move the victim to fresh, well-ventilated air. Loosen tight clothing to ensure unobstructed breathing. Let the victim rest in a comfortable position. No special treatment is needed if no discomfort; call a doctor if cough or chest tightness persists.
- In Case of Skin Contact: Immediately remove contaminated clothing and gloves. Rinse the affected skin with plenty of running water for at least 5 minutes. Pat dry gently; apply mild moisturizer if dryness occurs. Seek medical attention if redness or itching appears.
- In Case of Eye Contact: Hold the eyelids open and rinse the eyes continuously with clean running water for at least 10 minutes, flushing the entire eye surface. Do not rub the eyes. Remove contact lenses only if it can be done easily. Consult a doctor if irritation or blurred vision persists.
- If Swallowed: Rinse the mouth with plenty of clean water (do not swallow). Do not induce vomiting (risk of aspiration). If the victim is conscious, drink a small amount of water to dilute the substance. Call a POISON CENTER or doctor if gastrointestinal discomfort occurs.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

- Acute: Mild skin/eye irritation (sensitive individuals only), slight respiratory tract irritation, mild gastrointestinal discomfort; all symptoms are reversible with prompt treatment.
- Delayed: Transient skin dryness or slight peeling (1-2 days after contact in sensitive individuals); no long-term permanent organ damage reported.

4.3 Indication of Any Immediate Medical Attention and Special Treatment NeededNo specific antidote available; treat symptomatically. Seek urgent medical attention only for accidental large-dose swallowing or severe persistent eye irritation in sensitive individuals.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- Suitable: Carbon dioxide (CO_2), dry chemical powder, foam, alcohol-resistant fire extinguishing agent.
- Unsuitable: Do not use a direct high-pressure water jet (may spread the fire and dilute the product into flammable mixtures).

5.2 Special Hazards Arising from the Substance or MixtureCombustible liquid with low volatility; burning produces mild toxic smoke (carbon monoxide, aliphatic hydrocarbon vapors); vapor may spread to fire source and cause backfire; no explosive decomposition during combustion.

5.3 Advice for Firefighters

- Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective gear (fire-resistant suit, chemical-resistant gloves, goggles).

- Keep a safe distance from the fire scene; cool the burning and surrounding containers with water spray to prevent thermal expansion and rupture.
- Prevent fire-extinguishing wastewater from entering municipal sewers, rivers or other water bodies.
- Extinguish the fire from the upwind direction; eliminate all ignition sources in the fire scene.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency ProceduresWear basic personal protective equipment (chemical-resistant goggles, nitrile rubber gloves, organic vapor respirator). Eliminate all ignition sources (turn off electrical equipment, no smoking) in the spill area. Ensure good ventilation; evacuate non-essential personnel to a safe upwind area. Avoid inhaling vapor and direct skin/eye contact.

6.2 Environmental PrecautionsPrevent the spilled liquid from entering sewers, storm drains, rivers, lakes or soil. Build dikes with inert materials (sand, vermiculite) to contain the spilled liquid for small/medium spills.

6.3 Methods and Materials for Containment and Cleaning Up

- Small Spill: Absorb the spilled liquid with inert absorbent materials (activated carbon, diatomite, sand); collect the absorbent into a sealed HDPE container with hazard labels; wipe the spill area with ethanol and dispose of the waste cloth in the same container.
- Large Spill: Contain the liquid with dikes; transfer the spilled liquid to a sealed HDPE drum with an explosion-proof pump; clean the remaining liquid with absorbent materials and dispose of all waste as hazardous waste.6.4 Reference to Other SectionsFor waste disposal, see Section 13; for personal protection, see Section 8.

SECTION 7: Handling and Storage

7.1 Precautions for Safe HandlingOperate in a well-ventilated area with explosion-proof electrical equipment and local exhaust ventilation (for vapor collection). Wear specified PPE for all operations. Eliminate all ignition sources in the working area; no smoking, open flames or hot surfaces. Avoid generating vapor or spray; use closed transfer systems for bulk handling. Do not mix with strong oxidizing agents, strong acids or strong alkalis. Wash hands and exposed skin thoroughly with soap and water after handling; do not eat, drink or smoke in the working area.

7.2 Conditions for Safe Storage

- Storage Conditions: Store in a cool, dry, well-ventilated and explosion-proof warehouse. Temperature ≤25℃, relative humidity ≤60%. Keep the container tightly sealed with a screw cap to prevent vapor volatilization and contamination; store in original HDPE or amber glass containers (for light protection). Keep away from fire, heat sources, direct sunlight and electrical equipment.
- Incompatibilities: Strong oxidizing agents (H_2O_2, $KMnO_4$, chlorine), strong mineral acids (HCl, H_2SO_4), strong alkalis (NaOH, KOH), halogens, peroxides.

- Storage Class (TRGS 510): 3 (Flammable Liquids, Category 4)
- Shelf Life: **24 months (unopened, under specified storage conditions)**
- Segregation: Store separately from incompatible materials in a dedicated explosion-proof storage area with anti-leakage trays and fire-fighting equipment; keep a minimum distance of 3 meters from heat sources and ignition sources; mark clear hazard labels (combustible liquid, mild eye/skin irritation) on the storage area and containers.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- Occupational Exposure Limit (OEL) for Ethyl Decanoate: TWA 25 ppm (208 mg/m³, 8-hour, ACGIH); STEL 50 ppm (416 mg/m³, 15-minute, ACGIH)
- Biological Limit Value (BLV): N/A

8.2 Exposure Controls

- Engineering Controls: Explosion-proof electrical equipment and lighting; local exhaust ventilation system (air exchange rate ≥8 times/hour) for vapor collection; fire-fighting equipment (CO_2 fire extinguisher, foam fire extinguisher) in the working area; vapor concentration detection alarm (set alarm limit at 25 ppm).
- Personal Protective Equipment (PPE) - **MANDATORY for all operations**:
  - Eye/Face Protection: Chemical-resistant safety goggles for routine handling; face shield for bulk operations or spill cleanup.
  - Skin Protection: Nitrile rubber gloves (thickness ≥0.30 mm), chemical-resistant apron; replace gloves immediately if damaged or contaminated.
  - Respiratory Protection: Organic vapor respirator (OV cartridge) for routine operations; full-face SCBA with organic vapor filter for confined space or large spill emergency.
  - Other: Anti-static work shoes, fire-resistant work clothes; keep emergency eye wash station and safety shower within 10 meters of the work area.

SECTION 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Propertiesa) Physical State: Clear liquidb) Color: Colorless to pale yellowc) Odor: Characteristic fruity (orange/citrus) - waxy, mild fatty aromatic odord) Melting Point/Freezing Point: -20℃e) Boiling Point: 243-247℃f) Flammability (Liquid/Gas): Combustible liquid (Category 4)g) Upper/Lower Flammability or Explosive Limits: Lower: 0.5% (v/v); Upper: 4.0% (v/v) (20℃)h) Flash Point: 108℃ (Closed Cup)i) Autoignition Temperature: 450℃j) Decomposition Temperature: ≥220℃ (no hazardous decomposition)k) pH Value: Neutral (6.9-7.3, 25℃)l) Viscosity (25℃): 3.0-4.0 mPa·sm) Water Solubility: Insoluble in water; miscible with ethanol, ether, vegetable oil, mineral oil and most organic solventsn) Partition Coefficient (log P, n-octanol/water): 5.62 (25℃)o) Vapor Pressure (25℃): 0.002 kPa (very low volatility)p) Relative Density (20/20℃): 0.865-0.869q) Relative Vapor Density (air=1): 6.91r) Evaporation Rate (butyl acetate=1): 0.002 (very slow evaporation)s) Explosive Properties: No explosive properties under normal conditionst) Oxidizing Properties: None

9.2 Other Safety InformationNo crystallization at normal low temperature (> -20℃); very low volatility ensures long flavor/fragrance retention in formulations; compatible with most food, fragrance and industrial raw materials under normal formulation conditions (pH 5.0-8.5).

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under the recommended storage and handling conditions (≤25℃, sealed, away from light and ignition sources); no chemical changes under normal industrial processing conditions (≤100℃); stable in food/fragrance/cosmetic formulations with pH 5.0-8.5 for 12 months.10.2 Possibility of Hazardous Reactions: No hazardous reactions under normal use and processing conditions; reacts slowly with strong oxidizing agents/strong acids/strong alkalis at high temperature (>220℃) to produce mild toxic byproducts; no hazardous polymerization occurs under any conditions.10.3 Conditions to Avoid: High temperature (>220℃), direct sunlight, open flame, heat sources, contact with incompatible materials, prolonged exposure to air.10.4 Incompatible Materials: Strong oxidizing agents, strong mineral acids, strong alkalis, halogens, peroxides, strong reducing agents.10.5 Hazardous Decomposition Products: Carbon monoxide (CO), carbon dioxide (CO_2), aliphatic hydrocarbon vapors (high-temperature decomposition/combustion); no other hazardous decomposition products.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- Acute Toxicity:
  - Oral (Rat, LD_{50}): 4000 mg/kg (Low toxic)
  - Dermal (Rabbit, LD_{50}): >5000 mg/kg (Very low toxic)
  - Inhalation (Rat, LC_{50}): >4000 mg/m³ (4-hour vapor exposure) (Very low toxic)
- Skin Corrosion/Irritation: Rabbit 4-hour closed patch test - mild erythema in sensitive individuals (Category 2), reversible with proper treatment; no irritation in normal individuals.
- Serious Eye Damage/Irritation: Rabbit eye test - slight conjunctival redness in sensitive individuals (Category 2), reversible with prompt flushing; no irritation in normal individuals.
- Respiratory or Skin Sensitization: No sensitizing effects (human and animal tests).
- Germ Cell Mutagenicity: Ames test, chromosome aberration test - negative; no mutagenic effects.
- Carcinogenicity: IARC Classification - Group 3 (not classifiable as to carcinogenicity to humans); no carcinogenic effects in long-term animal tests.
- Reproductive Toxicity: No adverse reproductive or developmental effects in animal tests at occupational exposure doses; no teratogenic or embryotoxic effects.
- Specific Target Organ Toxicity (Repeated Exposure): 90-day repeated inhalation test - no target organ damage even at high concentration; no chronic toxic effects.
- Aspiration Hazard: Very low (low viscosity, very low volatility, high flash point).

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, 96h LC_{50}): 920 mg/L (aqueous emulsion)
- Daphnia (48h EC_{50}): 750 mg/L (aqueous emulsion)
- Freshwater Algae (72h EC_{50}): 950 mg/L (aqueous emulsion)12.2 Persistence and Degradability: Fully biodegradable (BOD_5 /COD = 0.78); degraded by microbial action in natural environment within 5-7 days; no persistent environmental residues.12.3 Bioaccumulative Potential: Very low (log P=5.62, high molecular weight limits bioaccumulation); no biomagnification in the food chain.12.4 Mobility in Soil: Low mobility; easily adsorbed to soil organic matter, no leaching risk to groundwater at normal use concentrations.12.5 PBT/vPvB Assessment: Not classified as PBT/vPvB substances (no persistence, very low bioaccumulation, low aquatic toxicity).12.6 Other Adverse Effects: No known adverse effects on soil microorganisms or terrestrial ecosystems at normal environmental concentrations; excessive discharge may cause temporary water body odor pollution.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- Product Waste: Expired/contaminated Ethyl Decanoate is classified as **hazardous waste (combustible liquid, mild toxicity)**; dispose of by licensed hazardous waste treatment facilities via incineration (≥800℃) with flue gas treatment (to remove aliphatic hydrocarbons). Do not discharge to the environment directly.
- Packaging Waste: Rinse packaging with a small amount of ethanol (collect rinsing waste as hazardous waste); dispose of contaminated packaging as hazardous waste; recycle clean and uncontaminated HDPE/glass packaging after thorough cleaning and testing.
- Spill Waste: Contaminated absorbent materials, cleaning tools and waste liquid are hazardous waste; collect and dispose of by licensed hazardous waste treatment companies in accordance with local regulations.
- Disposal Compliance: Comply with China HW06 (Organic Solvent Waste), EU EWC 030206, US RCRA Subtitle C (Hazardous Waste).

SECTION 14: Transport Information

14.1 UN Number: ADR/RID: 1993; IMDG: 1993; IATA-DGR: 199314.2 UN Proper Shipping Name: ADR/RID: Flammable liquid, n.o.s. (Ethyl Decanoate); IMDG: Flammable liquid, n.o.s. (Ethyl Decanoate); IATA-DGR: Flammable liquid, n.o.s. (Ethyl Decanoate)14.3 Transport Hazard Class(es): ADR/RID: 3; IMDG: 3; IATA-DGR: 314.4 Packaging Group: ADR/RID: III; IMDG: III; IATA-DGR: III14.5 Environmental Hazards: IMDG Marine Pollutant: **No**14.6 Special Precautions for TransportTransport in sealed HDPE plastic drums or amber glass bottles with anti-leakage and anti-static caps; fill the container with inert gas (nitrogen) for bulk transport to prevent vapor volatilization. Transport temperature ≤30℃, avoid direct sunlight, heat sources and open flames; the transport vehicle must be explosion-proof with anti-static ground wire and fire-fighting

equipment. Do not transport with strong oxidizing agents, strong acids, strong alkalis or food/fragrance raw materials; transport in a dedicated compartment of Class 3 flammable liquid transport vehicles with no mixed loading of other hazard classes. Comply with ADR/RID, IMDG Code and IATA-DGR regulations for Class 3 flammable liquids; provide MSDS/COA for customs clearance and transport documentation.

SECTION 15: Regulatory Information

15.1 National/International Regulations

- China: Hazardous Chemicals Safety Management Regulation (Class 3 Flammable Liquid); National Food Safety Standard (GB 2760-2021, approved as food flavor); Cosmetic Raw Material Safety Specification (2021); Fragrance Raw Material Industrial Standard.
- EU: REACH (Annex XVII compliant, not in SVHC Candidate List); CLP (GHS Classification - Warning); Food Additive Regulation (EC 1333/2008, approved as food flavor); Cosmetic Regulation (EC 1223/2009); IFRA (International Fragrance Association) compliant; ADR/RID Class 3 Transport Regulation.
- US: TSCA (listed on the TSCA Inventory); FDA GRAS (Generally Recognized As Safe) for food flavor use; FDA Cosmetic Ingredient Review (CIR) approved; OSHA Hazard Communication Standard (29 CFR 1910.1200); DOT Class 3 Transport Regulation.
- International: ISO 9001 (Quality); ISO 14001 (Environment); FAO/WHO Food Additive Standards; IFRA Fragrance Raw Material Standards.

15.2 Additional Regulatory RequirementsProvide English MSDS/COA for customs clearance and transport; mark **Class 3 Flammable Liquid, FOR FOOD/FRAGRANCE/COSMETIC/INDUSTRIAL USE ONLY, KEEP AWAY FROM FIRE** on all product documents and packaging; comply with food/fragrance/cosmetic additive dosage limits (GB 2760, EU 1333/2008, IFRA); label products with flammable, mild eye/skin irritation warnings for industrial use.

SECTION 16: Other Information

- Further Information: This MSDS complies with GB/T 16483, GB/T 17519 and GHS Rev.9 standards, and is for professional use only by trained personnel (production, storage, transport and disposal). Key characteristic: **Ethyl Decanoate (≥98.0%) colorless liquid, Class 3 flammable liquid, mild skin/eye irritation in sensitive individuals, fruity-waxy odor, for food flavor, fragrance, cosmetic, plasticizer and industrial organic synthesis use**.
- Revision Date: 28 FEB 2026