

## Safety Data Sheet (MSDS)

(According to GB/T 16483, GB/T 17519, and GHS Standards)

### SECTION 1: Identification

#### 1.1 Product Identifiers

- Product Name: Methyl Formate
- Product Number: MF-20260226
- Brand: TECHPURE
- CAS-No.: 107-31-3
- Synonyms: Formic Acid Methyl Ester; Methyl Methanoate

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

- Company : NEWAY SINOPHC TECH. LIMITED
- 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 Uses & Restrictions

- Identified Uses: Industrial solvent, chemical synthesis intermediate, laboratory reagent, refrigerant.
- Uses Advised Against: Food contact, medicinal purposes, and use in unventilated enclosed spaces.

### SECTION 2: Hazards Identification

#### 2.1 GHS Classification

- Flammable liquids (Category 1)
- Acute toxicity - Inhalation (Category 2)
- Skin corrosion/irritation (Category 1)
- Eye damage/eye irritation (Category 1)
- Aquatic toxicity (Category 1)

#### 2.2 GHS Label Elements

- Hazard Pictogram: Flame; Skull and crossbones; Corrosion; Environment
- Signal Word: Danger
- Hazard Statements: H224 (Extremely flammable liquid and vapor); H331 (Toxic if inhaled); H314 (Causes severe skin burns and eye damage); H400 (Very toxic to aquatic life)

- Precautionary Statements: P210 (Keep away from heat, hot surfaces, sparks, open flames); P260 (Do not breathe vapor); P280 (Wear protective gloves/eye protection/face protection/respiratory protection); P304+P340 (If inhaled: Remove to fresh air and keep at rest); P305+P351+P338 (If in eyes: Rinse cautiously with water for several minutes); P391 (Collect spillage); P403+P233 (Store in a well-ventilated place; keep container tightly closed)
- 2.3 Physical & Chemical Hazards: Extremely flammable vapor; forms explosive mixtures with air (5.0-23.0% v/v).
- 2.4 Health Hazards: Toxic if inhaled; causes severe skin/eye burns; excessive inhalation may cause respiratory irritation.
- 2.5 Environmental Hazards: Very toxic to aquatic organisms; persistent in the environment.
- 2.6 Other Hazards: None.

### **SECTION 3: Composition/Information on Ingredients**

- Substance / Mixture: Pure substance
- Active Component: Methyl Formate (CAS 107-31-3)
- Concentration:  $\geq 99.0\%$
- Impurities:  $\leq 1.0\%$  (Water, trace esters)

### **SECTION 4: First Aid Measures**

- Inhaled: Remove to fresh air immediately. Keep patient calm; give oxygen if breathing is difficult. Seek emergency medical attention.
- Skin Contact: Remove contaminated clothing. Rinse skin thoroughly with plenty of running water for 15-20 minutes. Seek medical advice.
- Eye Contact: Hold eyes open and rinse continuously with plenty of running water for 15 minutes. Remove contact lenses if present. Seek emergency medical attention.
- Swallowed: Do not induce vomiting. Rinse mouth with water. Seek immediate medical attention; bring this MSDS.

### **SECTION 5: Firefighting Measures**

- Suitable Extinguishing Media: Dry powder, carbon dioxide (CO<sub>2</sub>), foam, water spray.
- Unsuitable Extinguishing Media: None.
- Special Hazards: Vapors are heavier than air and may travel to ignition sources. Toxic fumes (carbon monoxide, formic acid) generated when burning.
- Advice for Firefighters: Wear self-contained breathing apparatus and full protective clothing. Cool containers with water spray from a safe distance.

### **SECTION 6: Accidental Release Measures**

- Personal Precautions: Evacuate non-essential personnel. Wear full PPE and ensure good ventilation. Eliminate all ignition sources.
- Environmental Precautions: Prevent spillage from entering drains, watercourses, or soil. Use absorbents to contain aquatic contamination.

- Clean-Up Methods: Small spills: Absorb with inert materials (sand, vermiculite) and dispose of as hazardous waste. Large spills: Contain with dikes; transfer to sealed containers for professional disposal.

## **SECTION 7: Handling and Storage**

- Handling Precautions: Operate in well-ventilated areas with explosion-proof electrical equipment. Avoid skin/eye contact and inhalation. Use anti-static tools. Do not siphon by mouth.
- Storage Conditions: Store in cool, dry, well-ventilated warehouses (temperature  $\leq 25^{\circ}\text{C}$ ). Keep container tightly closed. Store away from oxidizing agents, heat, and ignition sources.
- Incompatibilities: Strong oxidizers, acids, alkalis, metals.

## **SECTION 8: Exposure Controls/Personal Protection**

- Engineering Controls: Install local exhaust ventilation; use explosion-proof equipment. Maintain negative pressure in handling areas.
- Personal Protective Equipment:
  - Eye/Face Protection: Chemical safety goggles and face shield.
  - Skin Protection: Nitrile rubber gloves, chemical-resistant protective clothing, and safety shoes.
  - Respiratory Protection: Respirator with organic vapor cartridge (P100) when ventilation is insufficient.
- Exposure Limits: TWA (8h): 100 ppm (OSHA); STEL (15min): 150 ppm (OSHA).

## **SECTION 9: Physical and Chemical Properties**

- Physical State: Liquid
- Color: Colorless
- Odor: Pungent odor
- Melting Point:  $-99.8^{\circ}\text{C}$
- Boiling Point:  $32^{\circ}\text{C}$
- Flash Point (Closed Cup):  $-19^{\circ}\text{C}$
- Autoignition Temperature:  $449^{\circ}\text{C}$
- Density ( $20^{\circ}\text{C}$ ):  $0.975\text{ g/cm}^3$
- Viscosity ( $20^{\circ}\text{C}$ ):  $0.32\text{ mPa}\cdot\text{s}$
- Water Solubility: Fully miscible
- Vapor Pressure ( $20^{\circ}\text{C}$ ):  $53.3\text{ kPa}$
- Explosive Limits: 5.0-23.0% (v/v)

## **SECTION 10: Stability and Reactivity**

- Stability: Stable under normal conditions.
- Hazardous Reactions: Reacts violently with strong oxidizers, acids, and metals.
- Conditions to Avoid: Heat, sparks, open flames, strong oxidizers.

- Incompatible Materials: Oxidizing agents, acids, alkalis, metals (magnesium, aluminum).
- Hazardous Decomposition Products: Carbon monoxide, formic acid (when burned).

## SECTION 11: Toxicological Information

- Acute Toxicity: Oral (Rat, LD<sub>50</sub>): 1622 mg/kg; Inhalation (Rat, LC<sub>50</sub>): 4500 ppm (4h).
- Skin Corrosion/Irritation: Causes severe skin burns and irritation.
- Eye Damage/Irritation: Causes severe eye damage and permanent corneal injury.
- Chronic Toxicity: Long-term exposure may cause respiratory and liver/kidney damage.
- Reproductive Toxicity: No known reproductive toxicity at recommended exposure levels.

## SECTION 12: Ecological Information

- Aquatic Toxicity: Fish (Rainbow Trout, LC<sub>50</sub>): 500 mg/L (96h); Daphnia (EC<sub>50</sub>): 800 mg/L (48h).
- Biodegradability: Moderately biodegradable (BOD<sub>5</sub>/COD = 0.4-0.5).
- Bioaccumulative Potential: Low bioaccumulation (log K<sub>oc</sub> = 0.5).
- Environmental Fate: Volatilizes rapidly from water; persists in soil.

## SECTION 13: Disposal Considerations

- Waste Treatment: Dispose of as hazardous waste in accordance with local, national, and international regulations. Incinerate in facilities equipped with acid gas scrubbers.
- Packaging Waste: Rinse containers thoroughly with compatible solvent; dispose of as hazardous waste or recycle.

## SECTION 14: Transport Information

- UN Number: 1243
- UN Proper Shipping Name: METHYL FORMATE
- Transport Hazard Class: 3 (Flammable liquid)
- Packaging Group: I
- Marine Pollutant: Yes
- Transport Precautions: Transport in UN-approved hazardous goods containers. Avoid direct sunlight, high temperature, and collision. Do not transport with oxidizers or metals.

## SECTION 15: Regulatory Information

- National Regulations (China): Hazardous Chemical Safety Management Regulation; Environmental Protection Law; Occupational Disease Prevention and Control Law.
- International Regulations: GHS (Rev. 9); REACH (EU, listed); TSCA (US, listed); IMDG Code; IATA-DGR.

## SECTION 16: Other Information

- Revision Date: 26 FEB 2026
- Disclaimer: This MSDS is based on current scientific data. The supplier is not liable for damages caused by improper use or non-compliance with safety precautions.



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