SAFETY DATA SHEET

Dimethyl carbonate (DMC)

SECTION 1: IDENTIFICATION

Product identifier: Dimethyl carbonate

Other identifier: DMC

CAS number: 616-38-6

Recommended use: Solvent, electrolyte component in lithium-ion batteries

Restrictions on use: Only for uses supported by the supplier’s product specification and applicable regulatory status.

Supplier: Automat Solutions, Inc.

U.S. address: 2100 Williams St, San Leandro, CA 94577, United States.

U.S. telephone: +1 (510) 982-6488.

Email: contact@automatsoln.com.

Emergency telephone: +1 (510) 982-6488.

SECTION 2: HAZARD IDENTIFICATION

GHS classification: Flammable liquids, Category 2.

Signal word: Danger.

Hazard symbols (named): GHS02 — Flame.

H225: Highly flammable liquid and vapor.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof electrical, ventilating and lighting equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P280: Wear protective gloves, protective clothing, eye protection and face protection.

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P370+P378: In case of fire: Use dry chemical, carbon dioxide or alcohol-resistant foam to extinguish.

P403+P235: Store in a well-ventilated place. Keep cool.

P501: Dispose of contents and container through an approved waste disposal facility in accordance with applicable local, state and federal regulations.

Other hazards / hazards not otherwise classified: No additional information available.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Type: Substance.

Chemical name: Dimethyl carbonate

Synonym / abbreviation: DMC

CAS number: 616-38-6

Molecular formula: C3H6O3

Molecular weight: 90.08 g/mol

Composition declaration: 99–100%.

Hazardous impurities / stabilizers: No additional information available.

SECTION 4: FIRST AID MEASURES

Inhalation: Remove person to fresh air and keep comfortable for breathing. Obtain medical attention if symptoms occur or persist.

Skin contact: Immediately remove contaminated clothing. Rinse affected skin thoroughly with water or shower. Wash with soap and water. Obtain medical attention if irritation or rash occurs. Wash contaminated clothing before reuse.

Eye contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.

Ingestion: Rinse mouth. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a POISON CENTER or doctor if you feel unwell; obtain advice after ingestion.

Most important acute and delayed effects: No specific symptom data available.

Medical attention / treatment: Treat symptomatically. Protect rescuers from exposure.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable / unsuitable extinguishing media: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide, as appropriate to the surrounding fire. Do not direct a solid water jet at spilled liquid.

Specific hazards: Vapors can form ignitable mixtures, travel along floors and flash back. Heated closed containers may rupture.

Hazardous combustion products: Carbon monoxide and carbon dioxide.

Firefighter protection: Wear self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance.

Additional precautions: Prevent contaminated firefighting runoff from entering drains and waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Isolate the area. Keep unprotected personnel away. Ensure ventilation; avoid breathing dust, mist or vapor and avoid skin/eye contact. Wear the protection described in Section 8.

Emergency procedures: Evacuate the affected area when exposure cannot be controlled; trained responders only for significant releases.

Environmental precautions: Prevent entry into drains, sewers and waterways. Contain released material.

Ignition control: Remove ignition sources if safe. Use non-sparking tools and suitable explosion-proof equipment.

Containment / cleanup: Absorb with non-combustible inert material such as sand or vermiculite. Collect into a compatible, closed, labeled waste container.

Waste handling: Dispose of collected material and contaminated packaging according to Section 13.

SECTION 7: HANDLING AND STORAGE

Handling: Use suitable local exhaust ventilation. Avoid contact and inhalation. Wash after handling. Do not eat, drink or smoke in work areas.

Storage: Keep containers tightly closed in a dry, well-ventilated location away from incompatible substances. Protect from moisture.

Flammable / combustible handling: Keep away from heat and ignition sources; ground and bond containers during transfer and control static discharge. Use non-sparking tools and explosion-proof equipment as applicable.

Temperature: Product can freeze near 2–4 °C; avoid uncontrolled heating when warming containers.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No substance-specific occupational exposure limit available in the source information. Apply exposure limits and workplace controls required by the applicable jurisdiction.

Engineering controls: Use local exhaust or a suitable fume hood. Provide an eyewash and safety shower near the work area.

Eye / face protection: Chemical safety goggles; use a face shield in addition to goggles when splashing or corrosive exposure is possible.

Hand protection: Wear chemical-resistant gloves selected for the chemical, exposure duration, temperature and task. Confirm permeation/breakthrough performance with the glove manufacturer; select gloves with a breakthrough time appropriate for the task.

Skin / body protection: Wear protective clothing suitable for the task. Use flame-resistant, antistatic clothing where a flammable atmosphere is possible.

Respiratory protection: Use a properly selected, fit-tested, NIOSH-approved respirator under a respiratory-protection program when engineering controls are insufficient. Cartridge/filter selection must address all relevant gases, vapors and particles. Unknown or immediately dangerous concentrations require appropriate supplied-air protection or SCBA.

Hygiene: Remove contaminated clothing and wash before reuse. Wash hands and exposed skin after handling.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Data basis: Reference values from available supplier and literature information. These values are not batch specifications; estimates and test conditions are identified where available.

Molecular formula: C3H6O3

Molecular weight: 90.08 g/mol

Appearance / physical state: Colorless liquid; may freeze near 3 °C

Odor: Mild fruity odor

Odor threshold: No data available.

Melting / freezing point: 2–4 °C

Initial boiling point / boiling range: 90 °C at 1,013 hPa

Flammability: Flammable liquids, Category 2

Lower / upper flammability limits: 4.2 / 12.9 vol%

Flash point: 16 °C, closed cup (reference value)

Autoignition temperature: 458 °C

Decomposition temperature: No data available.

pH: No data available.

Kinematic viscosity: No data available.

Dynamic viscosity: 0.585 mPa·s at 25 °C

Water solubility: 114.7 g/L at 20 °C; partly soluble

Other solubility: Miscible with alcohols, ethers and ketones

Partition coefficient (n-octanol/water): log Pow 0.354

Vapor pressure: 7.4 kPa at 25 °C

Density / relative density: 1.069 g/cm³ at 25 °C

Relative vapor density: 3.1 (air = 1)

Evaporation rate: No data available.

Particle characteristics: Not applicable to the liquid; no particle data for any solidified phase.

Refractive index: n20/D 1.369

Oxidizing properties: No data available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: No additional data available; follow incompatibility and handling information.

Chemical stability: Stable under recommended dry storage conditions; protect from stated sensitivities.

Possibility of hazardous reactions: Ignitable vapor/air mixtures may form.

Conditions to avoid: Excess heat, incompatible materials and moisture where sensitive. Avoid sparks, flames and static discharge.

Incompatible materials: Strong acids, strong bases and oxidizing agents.

Hazardous decomposition products: Carbon monoxide and carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

Data basis: Available supplier toxicological information; missing study conditions are stated where applicable. No-data entries do not establish absence of hazard.

Likely routes of exposure: Inhalation, skin contact, eye contact and ingestion.

Acute toxicity / numerical measures: Oral LD50 (rat) >5,000 mg/kg; dermal LD50 >2,000 mg/kg; inhalation LC50 >5.36 mg/L. Species for dermal/inhalation and exposure duration are not available.

Skin corrosion / irritation: No skin irritation reported in supplier testing.

Serious eye damage / irritation: No eye irritation reported in supplier rabbit testing.

Respiratory / skin sensitization: No sensitization data available.

Germ cell mutagenicity: No data available.

Carcinogenicity: No data available. IARC, NTP and OSHA carcinogen-list information: No data available.

Reproductive toxicity: No data available.

STOT, single exposure: Not classified; no additional data available.

STOT, repeated exposure: No data available.

Aspiration hazard: No data available.

Symptoms / delayed effects: No specific symptom data available.

Interactions: No additional information available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: No quantitative ecotoxicity data available. Avoid environmental release.

Persistence / degradability: No data available.

Bioaccumulative potential: No bioaccumulation study data available; partition coefficient, if available, is listed in Section 9.

Mobility in soil: No data available.

Other adverse effects: No additional data available. Prevent release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment: Collect waste and contaminated absorbents in compatible, closed, labeled containers. Use a licensed waste contractor and comply with applicable local, state and federal requirements.

Environmental precautions: Do not discharge to drains, soil or waterways. Do not mix with incompatible wastes.

Contaminated packaging: Handle residues and uncleaned packaging with the same precautions as the product. Empty containers may retain ignitable vapor; do not cut, weld or heat them.

SECTION 14: TRANSPORT INFORMATION

DOT (U.S.): UN1161; Dimethyl carbonate; Class 3; Packing Group II.

IMDG: UN1161; DIMETHYL CARBONATE; Class 3; Packing Group II.

IATA: UN1161; Dimethyl carbonate; Class 3; Packing Group II.

Transport hazard labels: 3.

ERG guide: 129 (reported value).

IMDG EmS: F-E, S-D (reported value).

Environmental hazards / IMDG marine pollutant: No, as reported by the source supplier.

Transport in bulk under IMO instruments: Not assessed; these entries address packaged product.

Special precautions: Keep containers closed, secure and protected from damage and incompatible materials. Apply handling/storage precautions in Sections 7 and 10.

Air shipment details: Apply the current packing instructions, quantity limits and carrier restrictions for the actual shipment.

SECTION 15: REGULATORY INFORMATION

TSCA inventory information: No verified inventory-status data available.

SARA 311/312 hazard categories: Flammable liquids.

Additional federal and state regulatory information: No additional verified information available.

SECTION 16: OTHER INFORMATION

Preparation / revision date: 2026-10-19.

Document version: AS-DMC-20261019-01.

Revision description: Updated flammable-liquid classification, melting range, quantitative water solubility, physical properties and transport information. Supplier address and telephone updated.

Information sources: Existing Automat Solutions SDS and the supplied chemical comparison, with supplemental supplier information. TCI C0053; Sigma-Aldrich 517127 and Thermo Scientific AC116125000 as summarized in the source comparison; ICSC 1080.

Data limitations: Supplier and literature values are reference information and are not measurements on an Automat production lot. Missing test conditions and unavailable data are stated in the relevant sections.

Abbreviations: GHS, Globally Harmonized System; LD50, median lethal dose; LC50, median lethal concentration; ATE, acute toxicity estimate; STOT, specific target organ toxicity; DOT, U.S. Department of Transportation; IMDG, International Maritime Dangerous Goods; IATA, International Air Transport Association.

Disclaimer: This information describes safety precautions for the identified material. It is not a certificate of analysis or a guarantee of product properties. The information may not apply when the material is combined with other substances or used in processes not described here.