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SAFETY DATA SHEET

Section 1: Identification of the substance/mixture and of the company/undertaking

Chemical Name: Di-tert-butylidicarbonate
CAS No.: 24424-99-5
Molecular Formula: C₁₀H₁₈O₅
Supplier Name: Gree Industry Co.,Ltd
Supplier Address: No.2177 Tian Chen Road,City Jinan,Shandong Province, China
Telephone: +86-531-88755607
Emergency Phone: +86-531-88755607
Recommended and Restricted Use: Protective agent in amino acid synthesis.
Non-edible, for professional use only.

Section 2: Hazards identification

Emergency information summary: Burns on open flame, highly irritating and corrosive.

GHS Hazard Category: Classification according to Regulation GB13690-2009 "General Principles for the Classification of Chemicals and Hazard Communication":
Flammable liquids: Category 3; Acute inhalation toxicity - Inhalation: Category 2; Skin corrosion/irritation: Category 2; Serious eye damage/eye irritation: Category 1; Skin sensitization: Category 1; Specific target organ

toxicity - Single exposure: Category 3 (Respiratory irritation)

Label elements:

Pictogram:



Warning:

Hazard

Hazard information:

Flammable liquids and vapors; may cause skin irritation; may cause skin allergic reactions; cause serious eye injury; can be fatal if inhaled; may cause respiratory tract irritation.

Protection Notice:

Preventive measures:

Keep away from ignition sources and heat sources; smoking is strictly prohibited in the workplace; maintain sealed containers; use explosion-proof electrical appliances and equipment. Wear personal protective equipment (PPE) as required; wear protective gloves, goggles, and masks, and wear work clothes. Avoid contact with eyes and skin, and avoid inhalation or ingestion. Thoroughly wash after operation. No eating or drinking is permitted in the workplace.

Emergency Response:

In case of fire, use water mist or alcohol-resistant foam for extinguishing. If leakage occurs, wear protective equipment and collect the substance in a dry, sealed container. Skin Contact: Thoroughly rinse the skin with large amounts of clean water. If skin irritation or rash occurs, seek medical attention. Eye Contact: Immediately lift the eyelids and rinse with running water or saline solution for more than 15 minutes. Seek immediate medical care. Inhalation: Immediately move away from the scene to a fresh air area. If breathing is difficult, administer oxygen; if breathing stops, perform artificial respiration immediately. Seek immediate medical care. Ingestion: If conscious, rinse the mouth with warm water and seek medical attention.

Safe storage:

Store in a well-ventilated warehouse. Keep containers tightly sealed. Maintain low temperature.

Disposal: Send the contents and containers to a qualified waste treatment plant.

Physical and chemical hazards:

Health hazards: Inhalation is fatal, causing skin irritation, severe ocular injury, and may lead to cutaneous allergic reactions. It may also induce respiratory tract irritation.

Environmental hazards: May cause harm to the environment, and may lead to pollution of human body, soil and atmosphere.

Other hazards: No data available.

Section 3: Composition/information on ingredients

☒ Substance

☐ Mixture

Component	CAS No.	Concentration range
Di-tert-butylidicarbonate	24424-99-5	≥99%

Section 4: First aid measures

Description of first-aid measures:

Skin contact: Thoroughly rinse the skin with copious amounts of water. Seek medical attention if skin irritation or rash occurs.

Eye contact: Immediately lift the eyelid and rinse with running water or normal saline for more than 15 minutes. Seek medical attention immediately.

Inhalation: Immediately remove the affected individual to a fresh air environment. If dyspnea occurs, administer oxygen; if respiration ceases, perform artificial respiration immediately. Seek medical attention promptly.

Ingestion: If conscious, rinse mouth with warm water and seek medical attention.

Advice to protect rescuers: Rescuers should wear self-contained positive pressure air breathing

apparatus when entering the accident site.

Special note for physicians: No data available.

Section 5: Fire-Fighting Measures

Extinguishing agents: Water mist, alcohol-resistant foam, dry powder, or carbon dioxide can be used for fire suppression.

Highly hazardous: Toxic solid. Flammable solid. May release carbon oxides under high temperature or combustion conditions.

Fire extinguishing precautions and protective measures: Firefighters should wear self-contained positive pressure respirators and fire protection suits to prevent skin and eye contact. Extinguish the fire upwind. Do not evacuate personnel to a safe area.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear a respirator. Avoid inhalation of vapors, aerosols, or gases. Ensure adequate ventilation. Eliminate all ignition sources. Evacuate personnel to a safe area. Note that vapors may accumulate to explosive concentrations and can accumulate in low-lying areas on the ground.

Environmental protection measures: If safe and feasible, prevent further leakage or spillage. Avoid allowing the product to enter the sewer system.

Methods for containment and removal of leaked chemicals and the disposal materials used:

Contain the spillage, collect with a clean shovel into a dry, clean, and covered container, and store it in a sealed condition for disposal. After cleaning, ventilate and water the area. Prevent dust generation.

Preventive measures to avoid secondary hazards: No data available.

Section 7: Handling and storage

Operational Guidelines: Operators must undergo training and strictly adhere to operational protocols. It is recommended that operators wear respiratory protective equipment, chemical safety goggles, anti-toxic/anti-static workwear, and anti-toxic/anti-static gloves. Avoid inhaling dust, direct eye contact, and skin exposure. Prevent dust formation. Keep away from ignition sources, heat sources, and smoking is strictly prohibited in the workplace. The workplace should be equipped with ventilation systems and devices. Avoid contact with acids, alkalis, reducing agents, and flammable materials. Implement measures to prevent electrostatic discharge. During filling, monitor flow rate and ensure grounding to prevent static electricity accumulation. Thoroughly wash hands and face after operation. Handle with care during loading/unloading to prevent packaging damage, moisture, or loss. Equip with appropriate types and quantities of firefighting equipment and leakage emergency response devices.

Storage Precautions: Store in a cool, well-ventilated, and dry warehouse. Keep away from ignition sources and heat, and protect from direct sunlight. Maintain container seals. Store separately from acids, alkalis, reducing agents, and flammable materials. Sensitive to moisture and heat, and handle with care during inflation. Recommended storage temperature: 2-8°C. Avoid heating beyond 40°C. The storage area should be equipped with appropriate types and quantities of fire-fighting equipment, leakage emergency response devices, and suitable containment materials.

Section 8: Exposure controls/personal protection

Occupational exposure limit: No data available

Biological limit: No data available

Monitoring method: No data available

Engineering control: Ventilation systems and equipment are provided. Safe shower and eye-wash facilities are available.

Personal protective equipment:

Respiratory protection: wear a filtering facepiece (FFP) respirator.

Eye protection: Wear safety goggles.

Skin and body protection: Wear anti-static work clothes.

Hand protection: Wear acid-alkali resistant gloves.

Other protections: No data available.

Section 9: Physical and chemical properties

Appearance and characteristics: Colorless transparent liquid or white crystals

pH:	No data available	Melting point:	22-24°C
Boiling point:	56-57°C	Density:	0.949 g/mL (25°C)
Relative vapor density (air=1):	No data available	Relative density (water=1):	No data available
Heat of combustion (kJ/mol):	No data available	Saturated vapor pressure (kPa):	No data available
Critical pressure (MPa):	No data available	Critical temperature:	No data available
Flash point:	37°C	Viscosity at motion:	No data available
Decomposition temperature:	No data available	Autointermination temperature:	No data available
Explosive limit [% (V/V)]:	No data available		
Lower explosive limit [% (V/V)]: No data available			
Flammability: Classified as a Class 3 highly flammable liquid			
Distribution coefficient of n-octanol/water: No data available			
Solubility: Soluble in most organic solvents, such as carbon tetrachloride, tetrahydrofuran, dioxane, alcohols, acetone, acetonitrile, N,N-dimethylformamide, etc., insoluble in water.			

Section 10: Stability and Reactivity

Stability: Stable under normal temperature and pressure.

Incompatible substances: acids, alkalis, reducing agents.

Precautions: Avoid exposure to heat, flame, and sparks. High temperatures and direct sunlight.

Moisture.

Adverse reactions: No data available.

Hazardous decomposition products: carbon monoxide, carbon dioxide.

Section 11: Toxicological information

Acute toxicity: LD50 - Oral - Rat - >5000mg/kg

LC50 - Inhalation - Rat- 4h - 100 mg/m³

Skin irritation or corrosion: Causes skin irritation.

Eye irritation or corrosion: May cause severe eye injury.

Respiratory or skin allergy: May cause skin allergic reactions.

Germline mutability: No data available.

Carcinogenicity: No data available.

Genotoxicity: No data available.

Specific target organ system toxicity—single exposure: no data available.

Specific target organ system toxicity—repeated exposure: no data available.

Inhalation hazard: No data available.

Section 12: Ecological Information

Ecotoxicity: No data available.

Persistence and degradation: No data available.

Bioaccumulation or bioconcentration: No data available.

Soil mobility: no data available.

Other adverse effects: No data available.

Section 13: Disposal considerations

Disposal method:

Waste chemicals: Prioritize recycling whenever possible. If recycling is not feasible, incineration under supervision is recommended for disposal.

Packaging: Contact the manufacturer and return empty containers to the manufacturer.

Precautions for Disposal: Refer to national and local regulations prior to disposal, and evacuate non-related personnel. Operators must wear protective equipment to avoid direct contact.

Section 14: Transport information

UN dangerous goods code (UN number): 2929

UN Transport Name: Di-tert-butyl carbonate

UN Hazard Class: 6.1+3

Packaging Category: Class II

Packaging label: Toxicity, Flammable

Packaging method: small-mouth steel drums; ordinary wooden crates for ampoules; threaded-mouth glass bottles, iron-capped press-fitting glass bottles, plastic bottles, or metal drums (cans) in ordinary wooden crates. This project adopts small-mouth steel drums for packaging and storage.

Marine pollutants (yes/no): no

Transportation Guidelines: For rail transport, steel drums may be transported in open wagons. The packaging must remain intact at the time of departure, and loading should be securely fastened.

During transit, ensure the container remains leak-proof, stable, and undamaged. Mixing with acids,

metal powders, or food-grade chemicals is strictly prohibited. Transport vehicles must be equipped with emergency spill response equipment. Protect against direct sunlight, rain, and extreme heat during transit. For road transport, adhere to designated routes and avoid stopping in residential or densely populated areas.

Section 15: Regulatory information

Legal Information: The following laws, regulations, and standards provide corresponding provisions for the safe use, storage, transportation, handling, classification, and labeling of chemicals:

The hazard classification number of this product in GB12268-2012 'List of Dangerous Goods' is: 2929, with the name and description as follows: Organic toxic liquid, flammable, not otherwise specified (Di-tert-butyl carbonate).

This product is listed under Railway Dangerous Goods List (2009 Edition) with the railway dangerous number 61180, classified as an organic toxic substance [flammable, not separately listed] (di-tert-butyl carbonate).

This product is not included in the Catalogue of Hazardous Chemicals (2021 Edition). This product is not classified as a hazardous chemical.

Section 16: Other information

Last updated: January 1, 2025

Revised by: Safety and Environmental Department, Nanjing Tengxiang Import & Export Co. Ltd.

Revision Note: This SDS is prepared in accordance with the standard "Chemical Safety Data Sheet-Content and Item Sequence" (GB/T16483-2008). The GHS classification of chemicals in this SDS is independently performed by the enterprise based on the series of standards for chemical classification and labeling (GB 30000.2-2013 to GB 30000.29-2013).

Abbreviation description:

MAC: Maximum Allowable Concentration, the concentration of toxic chemicals that should not be exceeded at any time during a working day at a workplace.

PC-TWA : The average permissible exposure concentration calculated using a time-weighted method, based on an 8-hour workday and a 40-hour workweek.

PC-STEEL: Concentration level permitting short-term (15 minutes) exposure under PC-TWA compliance.

TLV-C: The time-limited value that must not be exceeded. It is specifically designated for certain substances such as irritant gases or those primarily acting acutely.

TLV-TWA: Refers to the time-weighted average concentration of a substance at which repeated lifetime exposure does not cause adverse effects in nearly all workers, based on 8-hour daily or 40-hour weekly working hours.

TLV-STEEL: The maximum concentration that allows continuous worker exposure for 15 minutes while ensuring compliance with TLV-TWA. This concentration must not exceed 4 times per workday, with at least 60 minutes between each exposure. It serves as a supplement to TLV-TWA.

IARC: International Agency for Research on Cancer

RTECS: refers to the Toxic Substances Database of the National Institute for Occupational Safety and Health in the United States

HSDB: Hazardous Substances Database of the National Library of Medicine

ACGIH: refers to the American Conference of Governmental Industrial Hygienists