

## Chemical Safety Data Sheet MSDS / SDS

**D-(+)-ALLOSE**Revision Date:2025-02-01 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : D-(+)-ALLOSE  
CBnumber : CB6416942  
CAS : 2595-97-3  
EINECS Number : 219-994-4  
Synonyms : D-Allose,(2R,3R,4R,5R)-2,3,4,5,6-pentahydroxyhexanal

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

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**SECTION 2: Hazards identification****Classification of the substance or mixture**

no data available

**Label elements****Pictogram(s)**

Signal word : no data available

**Hazard statement(s)**

no data available

**Precautionary statement(s)****Prevention**

no data available

**Response**

no data available

**Storage**

no data available

**Disposal**

no data available

#### Other hazards

no data available

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: D-(+)-ALLOSE
Synonyms	: D-Allose,(2R,3R,4R,5R)-2,3,4,5,6-pentahydroxyhexanal
CAS	: 2595-97-3
EC number	: 219-994-4
MF	: C6H12O6
MW	: 180.16

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## SECTION 4: First aid measures

### Description of first aid measures

#### If inhaled

Fresh air, rest.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Rinse mouth.

### Most important symptoms and effects, both acute and delayed

No toxicity (USCG, 1999)

### Indication of any immediate medical attention and special treatment needed

Pancreatic beta cells are highly sensitive to oxidative stress, which might play an important role in beta cell death in diabetes. The protective effect of 6,6'-bieckol, a phlorotannin polyphenol compound purified from *Ecklonia cava*, against high glucose-induced glucotoxicity was investigated in rat insulinoma cells. High glucose (30 mM) treatment induced the death of rat insulinoma cells, but treatment with 10 or 50 µg/mL 6,6'-bieckol significantly inhibited the high glucose-induced glucotoxicity. Furthermore, treatment with 6,6'-bieckol dose-dependently reduced the level of thiobarbituric acid reactive substances, generation of intracellular reactive oxygen species, and the level of nitric oxide, all of which were increased by high glucose concentration. In addition, 6,6'-bieckol protected rat insulinoma cells from apoptosis under high-glucose conditions. These effects were associated with increased expression of the anti-apoptotic protein Bcl-2 and reduced expression of the pro-apoptotic protein Bax. These findings indicate that 6,6'-bieckol could be used as a potential nutraceutical agent offering protection against the glucotoxicity caused by hyperglycemia-induced oxidative stress associated with diabetes.

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## SECTION 5: Firefighting measures

### Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

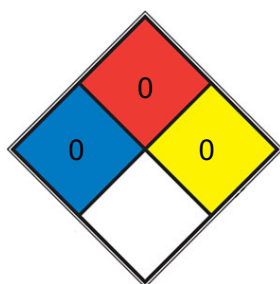
### Specific Hazards Arising from the Chemical

no data available

### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### NFPA 704



**HEALTH 0** Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials

**FIRE 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

**REACT 0** Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

**SPEC. HAZ.**

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

Sweep spilled substance into covered containers. Wash away remainder with plenty of water.

### Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Avoid dust formation. Avoid breathing vapors, mist or gas; Environmental precautions: No special environmental precautions required; Methods and materials for containment and cleaning up: Sweep up and shovel. Keep in suitable, closed containers for disposal.

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## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Separated from strong oxidants. Well closed. Keep container tightly closed in a dry and well-ventilated place. Hygroscopic. Keep in a dry place.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

no data available

#### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	Solid
Colour	White
Odour	Odorless
Melting point/freezing point	268°C(lit.)
Boiling point or initial boiling point and	87°C/0.1mmHg(lit.)

boiling range	
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	65°C(lit.)
Auto-ignition temperature	Not flammable (USCG, 1999)
Decomposition temperature	no data available
pH	pH of 0.5 molar aqueous solution = 5.9 /alpha-glucose/
Kinematic viscosity	no data available
Solubility	DMSO (Slightly), Methanol (Slightly), Water (Slightly)
Partition coefficient n-octanol/water	no data available
Vapour pressure	1.83E-08mmHg at 25°C
Density and/or relative density	1.732 g/cm <sup>3</sup>
Relative vapour density	no data available
Particle characteristics	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Reacts violently with strong oxidants.

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air. A weak reducing agent.

### Conditions to avoid

no data available

### Incompatible materials

Incompatible materials: Strong oxidizing agents

### Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 25,800 mg/kg
- Inhalation: no data available
- Dermal: no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

no data available

**Reproductive toxicity**

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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## SECTION 12: Ecological information

**Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

**Persistence and degradability**

AEROBIC: D(+)-Glucose, present at 1000 mg/L, reached >90% of its theoretical BOD in 2 days using a non-adapted activated sludge inoculum at 1 g/L (dry matter) in a Zahn-Wellens static test(1). The biodegradation half-life of D(+)-glucose in aerobic aquifer material (not heavily polluted), including Ontario loam and sand, South Carolina sand and Holland sand, is reported to range from 0.6-1.1 days(2). Using an electrolytic respirometry method with a 100 mg/L compound concentration and an activated sludge inoculum, D(+)-glucose was easily biodegraded with a 46-56% theoretical BOD in 100-110 hours(3). Using standard and seawater dilution methods, the 5-day BOD of D(+)-glucose was determined as 74.8 and 75.2% respectively(4). D(+)-Glucose was readily biodegradable in batch tests using adapted activated sludge with a biodegradation rate of 180.0 mg COD/g-hour(5). Biodegradation of D(+)-glucose in various samples of aquifer, saturated zone, and surface soils was found to occur rapidly with somewhat slower rates in till soil samples(6); based on measured rate constants(6), the

biodegradation half-life ranged from 0.25 to 19 days.

### **Bioaccumulative potential**

An estimated BCF of 3 was calculated in fish for D(+)-glucose(SRC), using a log Kow of -3.00(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

### **Mobility in soil**

Using a structure estimation method based on molecular connectivity indices(1), the Koc of D(+)-glucose can be estimated to be 10(SRC). According to a classification scheme(2), this estimated Koc value suggests that D(+)-glucose is expected to have very high mobility in soil.

### **Other adverse effects**

no data available

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## SECTION 13: Disposal considerations

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### **UN Number**

ADR/RID: UN3439 (For reference only, please check.)

IMDG: UN3439 (For reference only, please check.)

IATA: UN3439 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: NITRILES, SOLID, TOXIC, N.O.S. (For reference only, please check.)

IMDG: NITRILES, SOLID, TOXIC, N.O.S. (For reference only, please check.)

IATA: NITRILES, SOLID, TOXIC, N.O.S. (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

### **Packing group, if applicable**

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

### **Environmental hazards**

ADR/RID: No

IMDG: No

IATA: No

### **Special precautions for user**

no data available

### **Transport in bulk according to IMO instruments**

no data available

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## SECTION 15: Regulatory information

### **Safety, health and environmental regulations specific for the product in question**

#### **European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

#### **EC Inventory**

Listed.

#### **United States Toxic Substances Control Act (TSCA) Inventory**

Not Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**

Not Listed.

#### **Vietnam National Chemical Inventory**

Not Listed.

#### **IECSC**

Not Listed.

#### **Korea Existing Chemicals List (KECL)**

Listed.

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## SECTION 16: Other information

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail



IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Disclaimer:

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