

Dextrose SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

- * Product Name: Dextrose
- * Catalog Number: S2123
- * CAS Number: 50-99-7
- * IUPAC Name: (2R,3S,4R,5R)-2,3,4,5,6-pentahydroxyhexanal

Relevant identified uses and uses advised against

- * Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
- * Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

- * Company: Selleck Chemicals
- * TollFree: +1 877 796-6397
- * Tel: +1 832 582-8158
- * Fax: +1 832 582-8590

Emergency telephone number

- * Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Not classified as a hazardous substance according to GHS.

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s) None.

Signal Word Not applicable

Hazard statement(s) None.

Precautionary statement(s) None.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: Dextrose

CAS Number: 50-99-7

PubChem CID: 5793

Molecular formula: C₆H₁₂O₆

Molecular weight: 180.16 g/mol

IUPAC name: (3R,4S,5S,6R)-6-(hydroxymethyl)oxane-2,3,4,5-tetrol

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Fresh air, rest.

Skin contact: Wash with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation develops.

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

Ingestion: Rinse mouth.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO₂), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Use water spray, powder, foam, carbon dioxide.

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

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

For any fire, wear a self-contained breathing apparatus (SCBA) in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. ... On fire use water spray, dry chemical, carbon dioxide, or appropriate foam.

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

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

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.

Provide adequate ventilation. Avoid generating dust. Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, using the appropriate protective equipment.

SRP: Expired or waste pharmaceuticals shall carefully take into consideration applicable DEA, EPA, and FDA regulations. It is not appropriate to dispose by flushing the pharmaceutical down the toilet or discarding to trash. If possible return the pharmaceutical to the manufacturer for proper disposal being careful to properly label and securely package the material. Alternatively, the waste pharmaceutical shall be labeled, securely packaged and transported by a state licensed medical waste contractor to dispose by burial in a licensed hazardous or toxic waste landfill or incinerator.

Product: Offer surplus and non-recyclable solutions to a licensed disposal company; Contaminated packaging: Dispose of as unused product.

SRP: At the time of review, criteria for land treatment or burial (sanitary landfill) disposal practices are subject to significant revision. Prior to implementing land disposal of waste residue (including waste sludge), consult with environmental regulatory agencies for guidance on acceptable disposal practices.

Precautions for safe handling: Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

Appropriate engineering controls: General industrial hygiene practice.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

SRP: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants. Ensure that the local ventilation moves the contaminant away from the worker.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Separated from strong oxidants. Well closed.

Keep container tightly closed in a dry and well-ventilated place. Hygroscopic. Keep in a dry place.

General storage may be used. Store in a cool, dry, well-ventilated area away from strong oxidizers, strong acids.

7.2 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.

General storage may be used. Store in a cool, dry, well-ventilated area away from strong oxidizers, strong acids.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

Store in original container. Keep upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

8.1.2 Appropriate engineering controls

Use in a well-ventilated area. Chemical fume hood recommended for powder handling.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear safety glasses with side shields.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Respiratory protection usually not required under normal use with adequate ventilation.

Use N95 respirator for large-scale powder handling.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: Watery odorless colorless liquid. Denser than water and soluble in water. Hence sinks in and mixes with water. (USCG, 1999)

b) Odor: Odorless

c) Odor threshold: No data available

d) pH: pH of 0.5 molar aqueous solution = 5.9 /alpha-glucose/

e) Melting point/freezing point: less than 32 °F (USCG, 1999)

f) Initial boiling point and boiling range: greater than 212 °F at 760 mmHg (USCG, 1999)

g) Flash point: No data available

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapor pressure: 8.0×10^{-14} mm Hg at 25 °C /extrapolated from a higher solid-phase temperature range/

l) Vapor density: No data available

- m) Relative density: 1.2 at 68 °F (est.) (USCG, 1999) - Denser than water; will sink
- n) Water solubility: Soluble
- o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): -2.6
- p) Auto-ignition temperature: Not flammable (USCG, 1999)
- q) Decomposition temperature: No data available
- r) Viscosity: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 110 Å²
Complexity: 151

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

10.5 Incompatible materials

Incompatible materials: Strong oxidizing agents

Mixtures with alkali release carbon monoxide when heated.

Potentially explosive reaction with potassium nitrate + sodium peroxide when heated in a sealed container.

A micro Parr calorimeter exploded when the wrong proportions of /sodium peroxide, dextrose, and potassium nitrate/ were used. The intended mixture was 4.0 g sodium peroxide, 0.2 g dextrose, and 0.2 g potassium nitrate; actual proportions were 0.35 g, 2.59 g, and 0.2 g respectively. There was insufficient sodium peroxide to dissolve decomposition gases, hence a rapid temperature and pressure build-up caused the Parr bomb to burst.

Dust may form explosive mixture with air. Dextrose is a weak reducing material; keep away from strong oxidizers, strong acids, halogenated agents, nitrates, and permanganates.

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO₂).

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No acute toxicity data available.

Skin corrosion/irritation:

No data available.

Serious eye damage/eye 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.

Specific target organ toxicity (single exposure):

No data available.

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

No indication of carcinogenicity to humans (not listed by IARC).

Exposure routes:

The substance can be absorbed into the body by ingestion.

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

D(+)-Glucose's production and use in food confectionery, baking, canning, brewing and wine making and in beverages and syrups may result in its release to the environment through various waste streams. D(+)-Glucose is formed in plants by photosynthesis. Normal human blood contains 0.08-0.1% D(+)-glucose. If released to air, a vapor pressure of 8×10^{-14} mm Hg at 25 °C indicates D(+)-glucose will exist solely in the particulate phase in the atmosphere. Particulate-phase D(+)-glucose will be removed from the atmosphere by wet and dry deposition. D(+)-Glucose absorbs at wavelengths >290 nm and, therefore, may be susceptible to direct photolysis by sunlight. If released to soil, D(+)-glucose is expected to have very high mobility based upon an estimated Koc of 10. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 3.5×10^{-20} atm-cu m/mole. D(+)-Glucose is not expected to volatilize from dry soil surfaces based upon its vapor pressure. Biodegradation is expected to be the important fate process in soil and water since various screening studies have found D(+)-glucose to be readily biodegradable. Soil half-lives on the order of 1 day are reported, but a range of 0.25-19 days has also been observed. If released into water, D(+)-glucose is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. A biodegradation half-life of about 1 day has been reported for aquifer material.

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): -2.6

Low potential for bioaccumulation (Log P < 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

No other adverse ecological effects identified.

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION**14.1 UN number**

Not regulated as dangerous goods (research quantities typically exempt).

14.2 UN proper shipping name

Not subject to transport regulations (small quantities for research use).

14.3 Transport hazard class(es)

Not classified as dangerous goods for transport (research quantities).

14.4 Packing group

Not applicable (not regulated as dangerous goods in typical research quantities).

14.5 Environmental hazards

Marine pollutant: No (not classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Not available in public databases.

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

No SARA Hazards.

Massachusetts Right To Know Components:

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components:

No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right To Know Components:

No components are subject to the New Jersey Right to Know Act.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: D-Glucose
- FIFRA Requirements: Unless specifically excluded, residues resulting from the use of the following substance as either an inert or an active ingredient in a pesticide chemical formulation, including antimicrobial pesticide chemicals, is exempted from the requirement of a tolerance under FFDCa section 408, if such use i
- FDA Requirements: Substance added directly to human food affirmed as generally recognized as safe (GRAS).

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/08

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.