



D-FRUCTOSE-6-PHOSPHATE:2Na+:xH₂O (U-13C₆, 99%) MAY CONTAIN UP TO ~10% 13C₆ GLUCOSE-6-PHOSPHATE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 17/02/2011

Revision date: 30/08/2018

Supersedes: 25/09/2015

Version: 2.1

CLM-8616

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

1.1. Product identifier

Product form	: Substance
Substance name	: D-FRUCTOSE-6-PHOSPHATE:2Na+:xH ₂ O (U-13C ₆ , 99%) MAY CONTAIN UP TO ~10% 13C ₆ GLUCOSE-6-PHOSPHATE
EC-No.	: 247-505-4 (Unlabeled, anhydrous)
CAS-No.	: NA
Product code	: CLM-8616
Formula	: *C ₆ H ₁₁ Na ₂ O ₉ P·x(H ₂ O)

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category	: Professional use
Industrial/Professional use spec	: For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302
Eye Irrit. 2 H319
STOT SE 1 H370

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R22
Xi; R36
T; R39/23

Full text of R-phrases: see section 16

GHS-US classification

Acute Tox. 4 (Oral) H302
Eye Irrit. 2A H319
STOT SE 1 H370

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Eyes, Kidney, Liver, Heart, Central nervous system, Nerves.

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2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS08

GHS07

Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H370 - Causes damage to organs (eyes, heart, respiratory system, Skin) (in contact with skin, if inhaled, if swallowed)

Precautionary statements (CLP) :

: P260 - Do not breathe fume, dust, gas, mist, spray, vapors.
P264 - Wash Both hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P301+P312 - IF SWALLOWED: Call a doctor, a POISON CENTER if you feel unwell.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P311 - IF exposed or concerned: Call a POISON CENTER or doctor.
P330 - Rinse mouth.

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS08

GHS07

Signal word (GHS-US) :

: Danger

Hazard statements (GHS-US) :

: H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H370 - Causes damage to organs (eyes, spleen, respiratory system, heart) (Dermal, Inhalation, oral)

Precautionary statements (GHS-US) :

: P260 - Do not breathe dust, fume, gas, mist, spray, vapors.
P264 - Wash Both hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321 - Specific treatment (see Hazard pictograms (CLP) on this label)
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container to Comply with applicable regulations

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE	(CAS-No.) NA (EC-No.) 247-505-4 (Unlabeled, anhydrous)	100	Xn; R22 Xi; R36 T; R39/23

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE	(CAS-No.) NA (EC-No.) 247-505-4 (Unlabeled, anhydrous)	100	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 STOT SE 1, H370

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (Main constituent)	(CAS-No.) NA	100	Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319 STOT SE 1, H370

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Move out of dangerous area. Consult a physician and show this safety data sheet.
First-aid measures after inhalation	: If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.
First-aid measures after skin contact	: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

Reactivity : Not available.

5.3. Advice for firefighters

Firefighting instructions	: Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid breathing vapors, mist, gas. Avoid dust formation.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.

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Methods for cleaning up : This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep container tightly closed in a dry and well-ventilated place.

Storage conditions : Store in freezer (-20°C). Protect from light, air and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (NA)		
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	260 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m ³)	325 mg/m ³
USA NIOSH	NIOSH REL (STEL) (ppm)	250 ppm
USA NIOSH	Remark (NIOSH)	Potential for dermal absorption. Skin notation.
USA OSHA	OSHA PEL (TWA) (mg/m ³)	260
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm Skin notation
USA OSHA	OSHA PEL (STEL) (mg/m ³)	325 mg/m ³
USA OSHA	OSHA PEL (STEL) (ppm)	250
USA OSHA	Remark (OSHA)	Upper respiratory tract irritation. Confirmed animal carcinogen with unknown relevance to humans.

8.2. Exposure controls

Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing : Wear suitable protective clothing and gloves.

Hand protection : Wear suitable protective clothing and gloves.

Eye protection : Wear eye protection. Chemical goggles or face shield with safety glasses.

Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.

Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Powder.

Molecular mass : 310.06 g/mol (Labeled, anhydrous)

Color : White, Off-white.

Odor : No data available.

Odor threshold : No data available

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pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Not available.

10.2. Chemical stability

One year after receipt of order if stored as stated in "Storage" section. Re-QC after one year.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Not available.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Under fire conditions: Carbon oxides, Phosphorus oxides, Sodium oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (NA)

ATE CLP (oral)	500.000 mg/kg body weight
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Skin corrosion/irritation	: Not classified No data available
Serious eye damage/irritation	: Causes serious eye irritation. No data available
Respiratory or skin sensitization	: Not available No data available
Germ cell mutagenicity	: Not available
Carcinogenicity	: Not classified
Reproductive toxicity	: Not available
Specific target organ toxicity – single exposure	: Causes damage to organs (eyes, heart, respiratory system, Skin) (in contact with skin, if inhaled, if swallowed).

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE

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Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: The chemical, physical, and toxicological properties have not been thoroughly investigated.
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (NA)

Persistence and degradability	Not available.
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12.3. Bioaccumulative potential

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (NA)

Bioaccumulative potential	Not available.
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12.4. Mobility in soil

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (NA)

Ecology - soil	Not available.
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12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of an unprofessional handling or disposal. Harmful to aquatic life.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
Product/Packaging disposal recommendations	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Ecology - waste materials	: Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Additional information

Other information	: No supplementary information available.
Special transport precautions	: Not dangerous goods.

Overland transport

No additional information available

Transport by sea

No additional information available

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Air transport

No additional information available

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

Special transport precautions : Not dangerous goods.

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

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (NA)

Subject to reporting requirements of United States SARA Section 313

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
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15.2. International regulations

CANADA

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE (NA)

Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE(NA)

U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
STOT SE 1	Specific target organ toxicity (single exposure) Category 1
H302	Harmful if swallowed
H319	Causes serious eye irritation
H370	Causes damage to organs
R22	Harmful if swallowed
R36	Irritating to eyes

D-FRUCTOSE-6-PHOSPHATE:2Na+:xH2O (U-13C6, 99%) MAY CONTAIN UP TO ~10% 13C6 GLUCOSE-6-PHOSPHATE

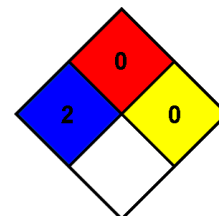
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R39/23	Toxic: danger of very serious irreversible effects through inhalation
T	Toxic
Xi	Irritant
Xn	Harmful

- NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
- NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.
- NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

- Health : 2 Moderate Hazard - Temporary or minor injury may occur
- Flammability : 0 Minimal Hazard
- Physical : 0 Minimal Hazard

CIL Substance SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product