

Section 2. Hazards identification

Response	: System Conditioning Reagent Glycan Standards	Not applicable. Not applicable.
Storage	: System Conditioning Reagent Glycan Standards	Not applicable. Not applicable.
Disposal	: System Conditioning Reagent Glycan Standards	Not applicable. Not applicable.
Supplemental label elements	: System Conditioning Reagent Glycan Standards	Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Prevent dust accumulation. None known.

2.3 Other hazards

Hazards not otherwise classified	: System Conditioning Reagent Glycan Standards	None known. None known.
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Section 3. Composition/information on ingredients

Substance/mixture	: System Conditioning Reagent Glycan Standards	Substance Mixture
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Ingredient name	%	CAS number
System Conditioning Reagent Aldolase, fructose diphosphate	100	9024-52-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	: System Conditioning Reagent Glycan Standards	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	: System Conditioning Reagent Glycan Standards	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical

Section 4. First aid measures

Skin contact	: System Conditioning Reagent Glycan Standards	attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: System Conditioning Reagent Glycan Standards	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: System Conditioning Reagent Glycan Standards	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes. No known significant effects or critical hazards.
Inhalation	: System Conditioning Reagent Glycan Standards	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. No known significant effects or critical hazards.
Skin contact	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: System Conditioning Reagent Glycan Standards	Adverse symptoms may include the following: irritation redness No specific data.
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Section 4. First aid measures

Inhalation	: System Conditioning Reagent Glycan Standards	Adverse symptoms may include the following: respiratory tract irritation coughing No specific data.
Skin contact	: System Conditioning Reagent Glycan Standards	No specific data. No specific data.
Ingestion	: System Conditioning Reagent Glycan Standards	No specific data. No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: System Conditioning Reagent Glycan Standards	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	: System Conditioning Reagent Glycan Standards	No specific treatment. No specific treatment.
Protection of first-aiders	: System Conditioning Reagent Glycan Standards	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: System Conditioning Reagent Glycan Standards	Use dry chemical powder. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: System Conditioning Reagent Glycan Standards	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: System Conditioning Reagent Glycan Standards	May form explosible dust-air mixture if dispersed. No specific fire or explosion hazard.
Hazardous thermal decomposition products	: System Conditioning Reagent Glycan Standards	Decomposition products may include the following materials: carbon dioxide carbon monoxide phosphorus oxides Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides

5.3 Advice for firefighters

Section 5. Fire-fighting measures

Special protective actions for fire-fighters : System Conditioning Reagent

Glycan Standards

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : System Conditioning Reagent

Glycan Standards

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : System Conditioning Reagent

Glycan Standards

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : System Conditioning Reagent

Glycan Standards

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : System Conditioning Reagent

Glycan Standards

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Section 6. Accidental release measures

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : System Conditioning Reagent

Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Glycan Standards

Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures : System Conditioning Reagent

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container. Put on appropriate personal protective equipment (see Section 8).

Glycan Standards

Advice on general occupational hygiene : System Conditioning Reagent

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Glycan Standards

Section 7. Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

: System Conditioning Reagent

Do not store above the following temperature: -20°C (-4°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Glycan Standards

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations

: System Conditioning Reagent
Glycan Standards

Industrial applications, Professional applications.
Industrial applications, Professional applications.

Industrial sector specific solutions

: System Conditioning Reagent
Glycan Standards

Not applicable.
Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
System Conditioning Reagent Aldolase, fructose diphosphate	None.

8.2 Exposure controls

Appropriate engineering controls

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: System Conditioning Reagent Glycan Standards	Solid. [Powder.] Solid.
Color	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Odor	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Odor threshold	: System Conditioning Reagent Glycan Standards	Not available. Not available.
pH	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Melting point	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Boiling point	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Flash point	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Evaporation rate	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Flammability (solid, gas)	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Lower and upper explosive (flammable) limits	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Vapor pressure	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Vapor density	: System Conditioning Reagent Glycan Standards	Not available. Not available.
Relative density	: System Conditioning Reagent Glycan Standards	Not available. Not available.

Section 9. Physical and chemical properties

Solubility	: System Conditioning Reagent	Partially soluble in the following materials: cold water and hot water.
	Glycan Standards	Partially soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: System Conditioning Reagent	Not available.
	Glycan Standards	Not available.
Auto-ignition temperature	: System Conditioning Reagent	Not available.
	Glycan Standards	Not available.
Decomposition temperature	: System Conditioning Reagent	Not available.
	Glycan Standards	Not available.
Viscosity	: System Conditioning Reagent	Not available.
	Glycan Standards	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: System Conditioning Reagent	No specific test data related to reactivity available for this product or its ingredients.
	Glycan Standards	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: System Conditioning Reagent	The product is stable.
	Glycan Standards	The product is stable.
10.3 Possibility of hazardous reactions	: System Conditioning Reagent	Under normal conditions of storage and use, hazardous reactions will not occur.
	Glycan Standards	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: System Conditioning Reagent	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation. No specific data.
	Glycan Standards	
10.5 Incompatible materials	: System Conditioning Reagent	Reactive or incompatible with the following materials: oxidizing materials
	Glycan Standards	May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: System Conditioning Reagent	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Glycan Standards	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure	: System Conditioning Reagent Glycan Standards	Not available. Not available.
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Potential acute health effects

Eye contact	: System Conditioning Reagent Glycan Standards	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes. No known significant effects or critical hazards.
Inhalation	: System Conditioning Reagent Glycan Standards	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. No known significant effects or critical hazards.
Skin contact	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: System Conditioning Reagent Glycan Standards	Adverse symptoms may include the following: irritation redness No specific data.
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Section 11. Toxicological information

Inhalation	: System Conditioning Reagent Glycan Standards	Adverse symptoms may include the following: respiratory tract irritation coughing No specific data.
Skin contact	: System Conditioning Reagent Glycan Standards	No specific data. No specific data.
Ingestion	: System Conditioning Reagent Glycan Standards	No specific data. No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: System Conditioning Reagent Glycan Standards	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. No known significant effects or critical hazards.
Carcinogenicity	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: System Conditioning Reagent Glycan Standards	No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information	: System Conditioning Reagent Glycan Standards	Not available. Not available.
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Section 12. Ecological information

12.1 Toxicity

Not available.

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Section 12. Ecological information

Not available.

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

Regulatory information

DOT / IMDG / IATA : Not regulated.

Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations : **United States inventory (TSCA 8b)**: Not determined.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

Section 15. Regulatory information

SARA 302/304

Composition/information on ingredients


No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification :  Fire hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
 System Conditioning Reagent Aldolase, fructose diphosphate	100	Yes.	No.	No.	No.	No.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

No products were found.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Canada inventory : Not determined.

China : Not determined.

Europe : Not determined.

Japan :  **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.

Malaysia : Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : Not determined.

Section 15. Regulatory information

Turkey : Not determined.

Section 16. Other information

History

Date of issue : 02/26/2017

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Version : 4

Indicates information that has changed from previously issued version.

Notice to reader

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