14 November 2017

Kit Components

Product Code	Description
30077-1	LavaLAMP™ DNA Component Kit and Green Fluorescent Dye

Components

10X LavaLAMP™ DNA Buffer	F834098-1
100 mM $MgSO_4$	F88695-2
LavaLAMP™ DNA Enzyme	F832817-1
DNA Positive Control LAMP Primer Mix	F813735-1
DNA Positive Control	F823736-1
Green Fluorescent Dye	F883827-2

10X LAMP DNA Buffer minus Magnesium Sulfate.

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 11/03/2017 Version: A

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

1.1. Product identifier

Product name : 10X LAMP DNA Buffer minus Magnesium Sulfate

Product form : Mixture

Product code : F834098-1.

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

Use of the substance/mixture : Laboratory chemical.

1.3. Details of the supplier of the safety data sheet

Lucigen Corporation
2905 Parmenter Street
Middleton, WI 53562
U.S.A.
Phone: (608) 831-9011
Fax: (608) 831-9012
E-mail: techserv@lucigen.com

1.4. Emergency telephone number

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labelling

No labeling applicable.

2.3. Other hazards

None.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

3.2. Mixture

Name	Product identifier	%
TRIS HCl, CAS # 1185-53-1 EC# 214-684-5 Chemical Formula: $C_4H_{11}NO_3$*HCl Molecular Weight: 157.60 g/mol Synonyms: TRIS hydrochloride, Tris(hydroxymethyl)aminomethanehydrochloride, 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Ingredient in product.	3.9%
D-Mannitol, CAS # 69-65-8 EC# 200-711-8 Chemical Formula: $C_6H_{14}O_6$ Molecular Weight: 182.17 g/mol Synonyms: Mannite	Ingredient in product.	5.0%
Trehalose, CAS # 6138-23-4 Chemical Formula: $C_{12}H_{22}O_{11}$*$2H_2O$ Molecular Weight: 378.3 g/mol Synonyms: ALPHA-D-GLUCOPYRANOSIDE, ALPHA-D-GLUCOPYRANOSYL	Ingredient in product.	20%
Ammonium sulfate, CAS # 7783-20-2 EC# 231-984-1 Chemical Formula: $H_8N_2O_4S$ Molecular Weight: 132.14 g/mol Synonyms: Ammonium sulphate	Ingredient in product.	1.3%
CHAPS, CAS # 75621-03-3 Chemical Formula: $C_4H_{11}NO_3$*HCl Molecular Weight: 614.88 g/mol Synonyms: 3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate	Ingredient in product. Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H315, H319, H335	3.0%

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, consult a physician. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin for at least 15 minutes with tepid water. Consult a physician.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of tepid water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Consult a physician.

First-aid measures after ingestion : IF SWALLOWED: Rinse mouth thoroughly and consult a physician. Do not induce vomiting.

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

Symptoms/injuries : Not expected to present a significant acute hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : May cause irritation to respiratory tract.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes eye irritation.

Symptoms/injuries after ingestion : May cause gastrointestinal distress, nausea, and diarrhea.

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

No additional information.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray, carbon dioxide, dry chemical powder, alcohol-resistant foam, or appropriate foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Emits toxic fumes under fire conditions.

Explosion hazard : No data available.

Reactivity : Can react with oxidizing agents.

5.3. Advice for firefighters

Firefighting instructions : Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ventilate area. Evacuate area. Keep upwind. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

Protective equipment : Wear Personal Protective Equipment as described in Section 8.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves, respirator, and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents (e.g., sand or vermiculite) to prevent migration and entry into sewers or streams.

Methods for cleaning up : Soak up spills with inert absorbants, such as sand or vermiculite as soon as possible. Place in closed waste container for disposal. This material and its container must be disposed of in a safe way, and as per local, state, and federal legislation.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water after handling material, leaving the laboratory, before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a -20°C freezer without a defrost cycle.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Contains no substances with occupational exposure limits.

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas. Emergency safety shower and eye wash station should be available. Avoid prolonged or repeated exposure.

Personal protective equipment : Gloves. Protective goggles. Laboratory Coat.

Hand protection : Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile.

Eye protection : Safety goggles should be worn when working with mixture. Avoid direct contact with eyes.

Skin and body protection : Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

Respiratory protection : Use NIOSH/MSHA-approved dust/particulate respirator. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment. Do not breathe in vapour, mist, or dust.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: No data available
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point (50% aquesous solution)	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility in Water	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

Explosive limits : No data available

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under use and storage conditions as recommended in section 7.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Strong oxidizing agents, Strong bases.

10.6. Hazardous decomposition products

Sulphur oxides, Magnesium oxide, Carbon oxides, Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/irritation	:	No data available
Respiratory or skin sensitisation	:	No data available
Germ cell mutagenicity	:	No data available
Carcinogenicity	:	IARC – No component of this product present at levels greater than or equal to 0.1% is dientified as probablye, possible, or confirmed human carcinogen by IARC. ACGIH – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP – No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticpated carcinogen by NTP. OSHA – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinoen or potential carcinogen by OSHA.
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
Symptoms/injuries after inhalation	:	May cause irritation to respiratory tract.
Symptoms/injuries after skin contact	:	Causes skin irritation.
Symptoms/injuries after eye contact	:	Causes eye irritation.
Symptoms/injuries after ingestion	:	May cause gastrointestinal distress, nausea, and diarrhea.
Additional Information	:	RTECS : Not available. May cause stomach irregularities (human evidence). To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Product should not be discharged to surface waters without a NPDES permit.

Waste disposal recommendations : Dispose in a safe manner in accordance with local, state, and federal regulations. Avoid release to the environment.

SECTION 14: Transport information

DOT

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15: Regulatory information

15.1. US Federal regulations

SARA 304 Extremely Hazardous Substances Reportable Quantity

This product does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

SARA 302

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

SARA 313

Ammonium sulphate, CAS 7783-20-2

15.2. International regulations.

None.

15.3. US State regulations

California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Massachusetts Right To Know Components

Ammonium sulphate, CAS 7783-20-2.

New Jersey Right to Know Hazardous Substance List

2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride, CAS 1185-53-1
D-Mannitol, CAS 69-65-8
Trehalose dehydrate, CAS 6138-23-4
Ammonium sulphate, CAS 7783-20-2
3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate, CAS 75621-03-3
Water, CAS 7732-18-5

Pennsylvania Right to Know List

2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride, CAS 1185-53-1
D-Mannitol, CAS 69-65-8
Trehalose dehydrate, CAS 6138-23-4
Ammonium sulphate, CAS 7783-20-2
3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate, CAS 75621-03-3
Water, CAS 7732-18-5

SECTION 16: Other information

Indication of changes : Revision A: Updated format.

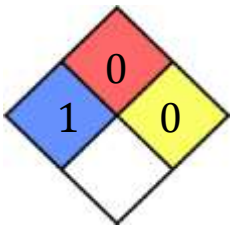
Revision date : 11/03/2017

Other information : Author: Lucigen Corporation

Full Text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	:	Eye irritation.
H315	:	Causes skin irritation.
H319	:	Causes serious eye irritation.
H335	:	May cause respiratory irritation.
Skin Irrit.	:	Skin irritation.
STOT SE	:	Specific target organ toxicity – single exposure

NFPA health hazard	:	1 – Exposure would cause irritation with only minor residual injury.
NFPA fire hazard	:	0 – Material that will not burn under typical fire conditions, including intrinsically noncombustibel materials such as concrete, stone and sand.
NFPA reactivity	:	0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health	:	1
Flammability	:	0
Physical Hazard	:	0
Personal Protection	:	

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.

100 mM Magnesium Sulfate Solution.

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 11/03/2017 Version: A

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

1.1. Product identifier

Product name : 100 mM Magnesium Sulfate Solution

Product form : Mixture

Product code : F88695-2.

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

Use of the substance/mixture : Laboratory chemical.

1.3. Details of the supplier of the safety data sheet

Lucigen Corporation
2905 Parmenter Street
Middleton, WI 53562
U.S.A.
Phone: (608) 831-9011
Fax: (608) 831-9012
E-mail: techserv@lucigen.com

1.4. Emergency telephone number

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labelling

No labeling applicable.

2.3. Other hazards

None.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

3.2. Mixture

Name	Product identifier	%
Magnesium sulfate, CAS # 7487-88-9 EC# 231-298-2 Chemical Formula: $MgSO_4$ Molecular Weight: 120.37 g/mol Synonyms: None	Ingredient in product.	1.2%

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, consult a physician. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin for at least 15 minutes with tepid water. Consult a physician.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of tepid water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Consult a physician.

First-aid measures after ingestion : IF SWALLOWED: Rinse mouth thoroughly and consult a physician. Do not induce vomiting.

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

Symptoms/injuries : Not expected to present a significant acute hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : May cause irritation to respiratory tract.

Symptoms/injuries after skin contact : May cause skin irritation.

Symptoms/injuries after eye contact : May cause irritation, redness, and pain.

Symptoms/injuries after ingestion : May cause gastrointestinal distress, nausea, and diarrhea.

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

No additional information.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray, carbon dioxide, dry chemical powder, alcohol-resistant foam, or appropriate foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Emits toxic fumes under fire conditions.

Explosion hazard : No data available.

Reactivity : Can react with oxidizing agents.

5.3. Advice for firefighters

Firefighting instructions : Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ventilate area. Evacuate area. Keep upwind. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

Protective equipment : Wear Personal Protective Equipment as described in Section 8.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves, respirator, and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents (e.g., sand or vermiculite) to prevent migration and entry into sewers or streams.

Methods for cleaning up : Soak up spills with inert absorbants, such as sand or vermiculite as soon as possible. Place in closed waste container for disposal. This material and its container must be disposed of in a safe way, and as per local, state, and federal legislation.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water after handling material, leaving the laboratory, before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a -20°C freezer without a defrost cycle.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Contains no substances with occupational exposure limits.

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas. Emergency safety shower and eye wash station should be available. Avoid prolonged or repeated exposure.

Personal protective equipment	:	Gloves. Protective goggles. Laboratory Coat.

Hand protection	:	Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile.
Eye protection	:	Safety goggles should be worn when working with mixture. Avoid direct contact with eyes.
Skin and body protection	:	Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.
Respiratory protection	:	Use NIOSH/MSHA-approved dust/particulate respirator if exposure symptoms develop. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment. Do not breathe in vapour, mist, or dust.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	No data available
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point (50% aquesous solution)	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Solubility in Water	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under use and storage conditions as recommended in section 7.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Sulphur oxides, Magnesium oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/irritation	:	No data available
Respiratory or skin sensitisation	:	No data available
Germ cell mutagenicity	:	No data available
Carcinogenicity	:	IARC – No component of this product present at levels greater than or equal to 0.1% is dientified as probablye, possible, or confirmed human carcinogen by IARC. ACGIH – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP – No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticpated carcinogen by NTP. OSHA – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinoen or potential carcinogen by OSHA.
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
Symptoms/injuries after inhalation	:	May cause irritation to respiratory tract.
Symptoms/injuries after skin contact	:	May cause mild irritation to skin.
Symptoms/injuries after eye contact	:	May cause irritation, redness, and pain.
Symptoms/injuries after ingestion	:	May cause gastrointestinal distress, nausea, and diarrhea.
Additional Information	:	RTECS : Not available. May cause central nervous system depression, liver irregularities (human evidence), and stomach irregularities (human evidence). To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	:	Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Product should not be discharged to surface waters without a NPDES permit.
Waste disposal recommendations	:	Dispose in a safe manner in accordance with local, state, and federal regulations. Avoid release to the environment.

SECTION 14: Transport information

DOT

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15: Regulatory information

15.1. US Federal regulations

SARA 304 Extremely Hazardous Substances Reportable Quantity

This product does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

Chronic Health Hazard

SARA 302

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

SARA 313

This materials 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.

15.2. International regulations.

None.

15.3. US State regulations

California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

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

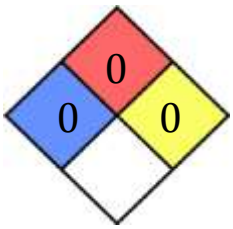
New Jersey Right to Know Hazardous Substance List
Magnesium sulphate, CAS 7487-88-9
Water, CAS 7732-18-5

Pennsylvania Right to Know List
Magnesium sulphate, CAS 7487-88-9
Water, CAS 7732-18-5

SECTION 16: Other information

Indication of changes	:	Revision A: Updated format.
Revision date	:	11/03/2017
Other information	:	Author: Lucigen Corporation

NFPA health hazard	:	0 – Poses no health hazard, no precaustions necessary and would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard	:	0 – Material that will not burn under typical fire conditions, including intrinsically noncombustibel materials such as concrete, stone and sand.
NFPA reactivity	:	0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health	:	0
Flammability	:	0
Physical Hazard	:	0
Personal Protection	:	

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.

LavaLAMP™ DNA Enzyme.

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 08/21/2018 Version: B

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

1.1. Product identifier

Product name : LavaLAMP™ DNA Enzyme

Product form : Mixture

Product code : F832817-1

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

Use of the substance/mixture : Laboratory chemical.

1.3. Details of the supplier of the safety data sheet

Lucigen Corporation
2905 Parmenter Street
Middleton, WI 53562
U.S.A.
Phone: (608) 831-9011
Fax: (608) 831-9012
E-mail: techserv@lucigen.com

1.4. Emergency telephone number

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labelling

No labelling applicable.

2.3. Other hazards

Not a hazardous substance or mixture.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

3.2. Mixture

Name	Product identifier	%
Not a hazardous ingredient at levels requiring disclosure by the OSHA Hazard Communication Standard (29 CFR 1910.1200).	Ingredient in product.	10%

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, consult a physician. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin for at least 15 minutes with tepid water. Consult a physician.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of tepid water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Consult a physician.

First-aid measures after ingestion : IF SWALLOWED: Rinse mouth thoroughly and consult a physician. Do not induce vomiting.

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

Symptoms/injuries : Not expected to present a significant acute hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : May cause upper respiratory irratation.

Symptoms/injuries after skin contact : May cause skin irritation.

Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.

Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

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, carbon dioxide, dry chemical powder, or appropriate foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No data available.

Explosion hazard : No data available.

Reactivity : Can react with oxidizing agents.

5.3. Advice for firefighters

Firefighting instructions : Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ventilate area. Evacuate area. Keep upwind. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

Protective equipment : Wear Personal Protective Equipment as described in Section 8.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves, respirator, and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents (e.g., sand or vermiculite) to prevent migration and entry into sewers or streams.

Methods for cleaning up : Soak up spills with inert absorbants, such as sand or vermiculite as soon as possible. Place in closed waste container for disposal. This material and its container must be disposed of in a safe way, and as per local, state, and federal legislation.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water after handling material, leaving the laboratory, before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at -20°C in a freezer without a defrost cycle.

SECTION 8: Exposure controls/personal protection

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas. Emergency safety shower and eye wash station should be available. Avoid prolonged or repeated exposure.

Personal protective equipment : Gloves. Protective goggles. Laboratory Coat.

Hand protection	:	Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile.
Eye protection	:	Safety goggles should be worn when working with mixture. Avoid direct contact with eyes.
Skin and body protection	:	Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.
Respiratory protection	:	Use NIOSH/MSHA-approved dust/particulate respirator. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment. Do not breathe in vapour, mist, or dust.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless, nearly colorless, whitish
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point (50% aquesous solution)	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20°C	:	No data available
Relative density	:	No data available
Solubility in Water	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under use and storage conditions as recommended in section 7.

10.3. Possibility of hazardous reactions

None known. Hazardous polymerization does not occur.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Strong oxidizing agents

10.6. Hazardous decomposition products

No information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	No data available

Skin corrosion/irritation	:	No data available
Serious eye damage/irritation	:	No data available
Respiratory or skin sensitisation	:	No data available
Germ cell mutagenicity	:	No data available
Carcinogenicity	:	IARC – No component of this product present at levels greater than or equal to 0.1% is dientified as probablye, possible, or confirmed human carcinogen by IARC. NTP – No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticpated carcinogen by NTP. OSHA – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
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
Symptoms/injuries after inhalation	:	May cause upper respiratory irratation. May cause headaches.
Symptoms/injuries after skin contact	:	May cause skin irritation.
Symptoms/injuries after eye contact	:	Direct contact with the eyes is likely to be irritating.
Symptoms/injuries after ingestion	:	May cause gastrointestinal irritation.
Additional Information	:	The chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	:	Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Product should not be discharged to surface waters without a NPDES permit.
Waste disposal recommendations	:	Dispose in a safe manner in accordance with local, state, and federal regulations. Avoid release to the environment.

SECTION 14: Transport information

DOT

Not hazardous for transport

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15: Regulatory information

15.1. US Federal regulations

SARA 304 Extremely Hazardous Substances Reportable Quantity

This product does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

No SARA Hazards

SARA 302

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

SARA 313

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.

15.2. International regulations

None.

15.3. US State regulations

California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Massachusetts Right To Know Components

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

New Jersey Right to Know Hazardous Substance List

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

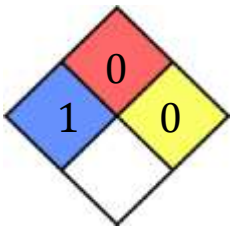
Pennsylvania Right to Know List

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

SECTION 16: Other information

Indication of changes	:	Revision B: Updated format.
Revision date	:	08/21/2018
Other information	:	Author: Lucigen Corporation

NFPA health hazard	:	1 – Exposure will cause irriation with only minor 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 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health	:	1
Flammability	:	0
Physical Hazard	:	0
Personal Protection	:	

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.

DNA Positive Control LAMP Primer Mix.

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 10/31/2017 Version: A

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

1.1. Product identifier

Product name : DNA Positive Control LAMP Primer Mix

Product form : Mixture

Product code : F813735-1

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

Use of the substance/mixture : Laboratory chemical.

1.3. Details of the supplier of the safety data sheet

Lucigen Corporation
2905 Parmenter Street
Middleton, WI 53562
U.S.A.
Phone: (608) 831-9011
Fax: (608) 831-9012
E-mail: techserv@lucigen.com

1.4. Emergency telephone number

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labelling

No labelling applicable.

2.3. Other hazards

None.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

3.2. Mixture

Synonyms : N/A

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, consult a physician. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin for at least 15 minutes with tepid water. Consult a physician.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of tepid water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Consult a physician.

First-aid measures after ingestion : IF SWALLOWED: Rinse mouth thoroughly and consult a physician. Do not induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cups of water. Wash mouth out with water. Consult a physician.

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

Symptoms/injuries : Not expected to present a significant acute hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : May cause upper respiratory irratation.

Symptoms/injuries after skin contact : May cause skin irritation.

Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.

Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

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, alcohol resistant foam, dry chemical, carbon dioxide, alcohol-resistant foam, or appropriate foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No data available.

Explosion hazard : No data available.

Reactivity : No dangerous reactions known under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions : Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ventilate area. Evacuate area. Keep upwind. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

Protective equipment : Wear Personal Protective Equipment as described in Section 8.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves, respirator, and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents (e.g., sand or vermiculite) to prevent migration and entry into sewers or streams.

Methods for cleaning up : Soak up spills with inert absorbants, such as sand or vermiculite as soon as possible. Place in closed waste container for disposal. This material and its container must be disposed of in a safe way, and as per local, state, and federal legislation.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water after handling material, leaving the laboratory, before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at -20 °C. Keep container tightly closed.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Contains no substances with occupational exposure limit values.

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas. Emergency safety shower and eye wash station should be available. Avoid prolonged or repeated exposure.

Personal protective equipment	:	Gloves. Protective goggles. Laboratory Coat.

Hand protection	:	Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile.
Eye protection	:	Safety goggles should be worn when working with mixture. Avoid direct contact with eyes.
Skin and body protection	:	Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.
Respiratory protection	:	Use NIOSH/MSHA-approved dust/particulate respirator if irriration or other symptoms occur. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment. Do not breathe in vapour, mist, or dust.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Clear
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Solubility in Water	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under use and storage conditions as recommended in section 7.

10.3. Possibility of hazardous reactions

None known. Hazardous polymerization does not occur.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Hazardous decomposition products may form under fire conditions. The nature of the decomposition products is not known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/irritation	:	No data available
Respiratory or skin sensitisation	:	No data available
Germ cell mutagenicity	:	No data available
Carcinogenicity	:	IARC – No component of this product present at levels greater than or equal to 0.1% is dientified as probablye, possible, or confirmed human carcinogen by IARC. ACGIH – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP – No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticpated carcinogen by NTP. OSHA – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinoen or potential carcinogen by OSHA.
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
Symptoms/injuries after inhalation	:	May cause upper respiratory irratation.
Symptoms/injuries after skin contact	:	May cause skin irritation.
Symptoms/injuries after eye contact	:	Direct contact with the eyes is likely to be irritating.
Symptoms/injuries after ingestion	:	May cause gastrointestinal irritation.
Additional Information	:	None.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	:	Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Product should not be discharged to surface waters without a NPDES permit.
Waste disposal recommendations	:	Dispose in a safe manner in accordance with local, state, and federal regulations. Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Not hazardous for transport

Additional information

Other information : No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

SARA 302 Components

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

SARA 304 Extremely Hazardous Substances Reportable Quantity

This product does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

No SARA Hazards

SARA 313

This materials 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.

15.2. International regulations

None.

15.3. US State regulations

California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Massachusetts Right To Know Components

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

New Jersey Right to Know Hazardous Substance List

Water, CAS 7732-18-5

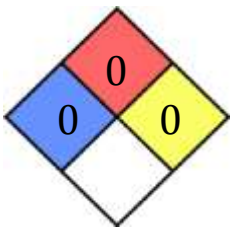
Pennsylvania Right to Know List

Water, CAS 7732-18-5

SECTION 16: Other information

Indication of changes	: Revision A: Updated format.
Revision date	: 10/31/2017
Other information	: Author:

NFPA health hazard	: 0 – Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials.
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 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health	: 0
Flammability	: 0
Physical Hazard	: 0
Personal Protection	:

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.

DNA Positive Control.

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 10/31/2017 Version: A

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

1.1. Product identifier

Product name : DNA Positive Control

Product form : Mixture

Product code : F823736-1

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

Use of the substance/mixture : Laboratory chemical.

1.3. Details of the supplier of the safety data sheet

Lucigen Corporation
2905 Parmenter Street
Middleton, WI 53562
U.S.A.
Phone: (608) 831-9011
Fax: (608) 831-9012
E-mail: techserv@lucigen.com

1.4. Emergency telephone number

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labelling

No labelling applicable.

2.3. Other hazards

None.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

3.2. Mixture

Synonyms : N/A

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, consult a physician. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin for at least 15 minutes with tepid water. Consult a physician.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of tepid water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Consult a physician.

First-aid measures after ingestion : IF SWALLOWED: Rinse mouth thoroughly and consult a physician. Do not induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cups of water. Wash mouth out with water. Consult a physician.

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

Symptoms/injuries : Not expected to present a significant acute hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : May cause upper respiratory irratation.

Symptoms/injuries after skin contact : May cause skin irritation.

Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.

Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

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, alcohol resistant foam, dry chemical, carbon dioxide, alcohol-resistant foam, or appropriate foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No data available.

Explosion hazard : No data available.

Reactivity : No dangerous reactions known under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions : Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ventilate area. Evacuate area. Keep upwind. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

Protective equipment : Wear Personal Protective Equipment as described in Section 8.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves, respirator, and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents (e.g., sand or vermiculite) to prevent migration and entry into sewers or streams.

Methods for cleaning up : Soak up spills with inert absorbants, such as sand or vermiculite as soon as possible. Place in closed waste container for disposal. This material and its container must be disposed of in a safe way, and as per local, state, and federal legislation.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water after handling material, leaving the laboratory, before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at -20 °C. Keep container tightly closed.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Contains no substances with occupational exposure limit values.

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas. Emergency safety shower and eye wash station should be available. Avoid prolonged or repeated exposure.

Personal protective equipment	:	Gloves. Protective goggles. Laboratory Coat.

Hand protection	:	Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile.
Eye protection	:	Safety goggles should be worn when working with mixture. Avoid direct contact with eyes.
Skin and body protection	:	Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.
Respiratory protection	:	Use NIOSH/MSHA-approved dust/particulate respirator if irriration or other symptoms occur. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment. Do not breathe in vapour, mist, or dust.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Clear
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Solubility in Water	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under use and storage conditions as recommended in section 7.

10.3. Possibility of hazardous reactions

None known. Hazardous polymerization does not occur.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Hazardous decomposition products may form under fire conditions. The nature of the decomposition products is not known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/irritation	:	No data available
Respiratory or skin sensitisation	:	No data available
Germ cell mutagenicity	:	No data available
Carcinogenicity	:	IARC – No component of this product present at levels greater than or equal to 0.1% is dientified as probablye, possible, or confirmed human carcinogen by IARC. ACGIH – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP – No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticpated carcinogen by NTP. OSHA – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinoen or potential carcinogen by OSHA.
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
Symptoms/injuries after inhalation	:	May cause upper respiratory irratation.
Symptoms/injuries after skin contact	:	May cause skin irritation.
Symptoms/injuries after eye contact	:	Direct contact with the eyes is likely to be irritating.
Symptoms/injuries after ingestion	:	May cause gastrointestinal irritation.
Additional Information	:	None.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	:	Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Product should not be discharged to surface waters without a NPDES permit.
Waste disposal recommendations	:	Dispose in a safe manner in accordance with local, state, and federal regulations. Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Not hazardous for transport

Additional information

Other information : No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

SARA 302 Components

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

SARA 304 Extremely Hazardous Substances Reportable Quantity

This product does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

No SARA Hazards

SARA 313

This materials 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.

15.2. International regulations

None.

15.3. US State regulations

California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Massachusetts Right To Know Components

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

New Jersey Right to Know Hazardous Substance List

Water, CAS 7732-18-5

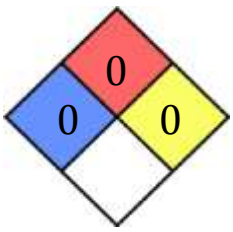
Pennsylvania Right to Know List

Water, CAS 7732-18-5

SECTION 16: Other information

Indication of changes	: Revision A: Updated format.
Revision date	: 10/31/2017
Other information	: Author:

NFPA health hazard	: 0 – Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials.
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 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health	: 0
Flammability	: 0
Physical Hazard	: 0
Personal Protection	:

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Green Fluorescent Dye.

Safety Data Sheet

Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 10/31/2017 Version: A

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

1.1. Product identifier

Product name : Green Fluorescent Dye

Product form : Mixture

Product code : F883827-1, F883827-2

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

Use of the substance/mixture : Laboratory chemical.

1.3. Details of the supplier of the safety data sheet

Lucigen Corporation
2905 Parmenter Street
Middleton, WI 53562
U.S.A.
Phone: (608) 831-9011
Fax: (608) 831-9012
E-mail: techserv@lucigen.com

1.4. Emergency telephone number

Emergency number : 1-888-575-9695 (Lucigen: Monday-Friday, 8:00AM-5:00PM)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labelling

No labelling applicable.

2.3. Other hazards

None.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

3.2. Mixture

Synonyms : N/A

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, consult a physician. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a comfortable position for breathing. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin for at least 15 minutes with tepid water. Consult a physician.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of tepid water for at least 15 minutes. Remove contact lenses if present and easy to do so. Continue rinsing. Consult a physician.

First-aid measures after ingestion : IF SWALLOWED: Rinse mouth thoroughly and consult a physician. Do not induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cups of water. Wash mouth out with water. Consult a physician.

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

Symptoms/injuries : Not expected to present a significant acute hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : May cause upper respiratory irratation.

Symptoms/injuries after skin contact : May cause skin irritation.

Symptoms/injuries after eye contact : Direct contact with the eyes is likely to be irritating.

Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

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, alcohol resistant foam, dry chemical, carbon dioxide, alcohol-resistant foam, or appropriate foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No data available.

Explosion hazard : No data available.

Reactivity : No dangerous reactions known under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions : Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ventilate area. Evacuate area. Keep upwind. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

6.1.1. For non-emergency personnel

Protective equipment : Wear Personal Protective Equipment as described in Section 8.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves, respirator, and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents (e.g., sand or vermiculite) to prevent migration and entry into sewers or streams.

Methods for cleaning up : Soak up spills with inert absorbants, such as sand or vermiculite as soon as possible. Place in closed waste container for disposal. This material and its container must be disposed of in a safe way, and as per local, state, and federal legislation.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Wear recommended personal protective equipment. Wash hands and other exposed areas with mild soap and water after handling material, leaving the laboratory, before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at -20 °C. Keep container tightly closed.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Contains no substances with occupational exposure limit values.

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Ensure adequate ventilation, especially in confined areas. Emergency safety shower and eye wash station should be available. Avoid prolonged or repeated exposure.

Personal protective equipment	:	Gloves. Protective goggles. Laboratory Coat.

Hand protection	:	Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile.
Eye protection	:	Safety goggles should be worn when working with mixture. Avoid direct contact with eyes.
Skin and body protection	:	Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.
Respiratory protection	:	Use NIOSH/MSHA-approved dust/particulate respirator if irriration or other symptoms occur. Where vapor, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment. Do not breathe in vapour, mist, or dust.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Clear
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Solubility in Water	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under use and storage conditions as recommended in section 7.

10.3. Possibility of hazardous reactions

None known. Hazardous polymerization does not occur.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Hazardous decomposition products may form under fire conditions. The nature of the decomposition products is not known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/irritation	:	No data available
Respiratory or skin sensitisation	:	No data available
Germ cell mutagenicity	:	No data available
Carcinogenicity	:	IARC – No component of this product present at levels greater than or equal to 0.1% is dientified as probablye, possible, or confirmed human carcinogen by IARC. ACGIH – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP – No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticpated carcinogen by NTP. OSHA – No component of this product present at levels greater than or equal to 0.1% is identified as a carcinoen or potential carcinogen by OSHA.
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
Symptoms/injuries after inhalation	:	May cause upper respiratory irratation.
Symptoms/injuries after skin contact	:	May cause skin irritation.
Symptoms/injuries after eye contact	:	Direct contact with the eyes is likely to be irritating.
Symptoms/injuries after ingestion	:	May cause gastrointestinal irritation.
Additional Information	:	None.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	:	Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Product should not be discharged to surface waters without a NPDES permit.
Waste disposal recommendations	:	Dispose in a safe manner in accordance with local, state, and federal regulations. Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Not hazardous for transport

Additional information

Other information : No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

SARA 302 Components

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

SARA 304 Extremely Hazardous Substances Reportable Quantity

This product does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards

No SARA Hazards

SARA 313

This materials 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.

15.2. International regulations

None.

15.3. US State regulations

California Proposition 65

This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Massachusetts Right To Know Components

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

New Jersey Right to Know Hazardous Substance List

Water, CAS 7732-18-5

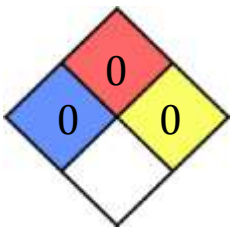
Pennsylvania Right to Know List

Water, CAS 7732-18-5

SECTION 16: Other information

Indication of changes	: Revision A: Updated format.
Revision date	: 10/31/2017
Other information	: Author:

NFPA health hazard	: 0 – Poses no health hazard, no precautions necessary and would offer no hazard beyond that of ordinary combustible materials.
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 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health	: 0
Flammability	: 0
Physical Hazard	: 0
Personal Protection	:

This information is disclosed to the best of Lucigen's knowledge. This document does not constitute a contractual relationship with product end users or handlers with respect to the possible presence of hazards in this item. Disposal should be in accordance with applicable regional, national and local laws and regulations.