

Safety Data Sheet



Revision Date: 7/31/2014

SDS #: SDS-10292-01

HistoMark X-Gal Substrate Set

1. PRODUCT AND COMPANY IDENTIFICATION

Product Description:

HistoMark X-Gal Substrate Set

Product Code

54-13-00

Kit Components:

X-Gal Substrate Solution	71-00-56
Histo, Iron Buffer	71-00-55

Recommended Use Kit (See Attached Safety Data Sheets For Components Listed Above)

Contact Manufacturer KPL, Inc.
910 Clopper Road
Gaithersburg, Maryland 20878
USA

Phone #: 1-301-948-7755
Fax #: 1-301-948-0169
Web: www.kpl.com
Email: kplmsds@seracare.com

Emergency Telephone Numbers:

AUSTRALIA – POISONS INFORMATION CENTER	Telephone: 13 11 26	Hours: 24 hours
CANADIAN TRANSPORT EMERGENCY CENTER	Telephone: (1) 613 996 6666	Hours: 24 hours/day, 7 days/week
UK – THE NATIONAL FOCUS	Telephone: (44) 029 2041 6388	Hours: 09:00-17:00 GMT
USA- NATIONAL RESPONSE CENTER	Telephone: (1) 800 424 8802	Hours: 24 hours/day, 7 days/week

CHEMTREC:

CHEMTREC Customer Number:- CCN12505*
For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300 CCN12505 or
+1 703-527-3887 (collect calls accepted)

Safety Data Sheet



Revision Date: 7/22/2014

SDS #: 10002

X-Gal Substrate Solution

1. PRODUCT AND COMPANY IDENTIFICATION

Product Description:

X-Gal Substrate Solution

Product Code

71-00-56

Hazardous Reagent

X-Gal Substrate Solution

Hazardous Reagent Product code

Catalog No. listed above

Recommended Use Reagent

Contact Manufacturer KPL, Inc.
910 Clopper Road
Gaithersburg, Maryland 20878
USA

Phone #: 1-301-948-7755
Fax #: 1-301-948-0169
Web: www.kpl.com
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2. HAZARD IDENTIFICATION

Hazard Type

Health Hazard.

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Classification

Repr. 1B: Reproductive toxicity H360D
Acute Tox. 4 : H332
Acute Tox. 4 : H312
Eye Irrit. 2:
H319

Acute Tox. 4 : H302

Hazard Statement

H360D: May damage the unborn child.
H332: Harmful if inhaled
H312: Harmful in contact with skin
H319: Causes serious eye irritation
H302: Harmful if swallowed.

Precautionary Statement

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P264: Wash skin thoroughly after handling.

X-Gal Substrate Solution

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/ protective clothing / eye protection/ face protection.

Symbols of Danger

GHS08

GHS07

Danger

**Data for 100% Hazardous Chemical**

ROUTES OF EXPOSURE:	The substance can be absorbed into the body by inhalation and through the skin.
INHALATION RISK:	A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.
SHORT-TERM EXPOSURE	The substance is irritating to the eyes . The substance may cause effects on the liver , resulting in jaundice . See Notes.
LONG-TERM EXPOSURE:	The substance may have effects on the liver , resulting in impaired functions . Animal tests show that this substance possibly causes toxic effects upon human reproduction.

The product is a Mixture. It May Cause the following symptoms.

EYES: Redness. Pain.

SKIN: MAY BE ABSORBED!

INHALATION: Abdominal pain. Diarrhoea. Nausea. Vomiting. Facial flushing.

INGESTION: Do not eat, drink, or smoke during work.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CHEMICAL	% Weight	CAS #:
X-Gal Substrate Solution	N,N,-Dimethylformamide	≤10%	68-12-2
	Ethylene Glycol	>90%	107-21-1

Classification

Repr. 1B: Reproductive toxicity H360D

Acute Tox. 4 : H332

Acute Tox. 4 : H312

Eye Irrit. 2:

H319

Acute Tox. 4 : H302

4. FIRST AID MEASURES

Data for 100% Hazardous Chemical

Inhalation First Aid:	Fresh air, rest. Refer for medical attention.
Skin First Aid:	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
Eye First Aid:	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

Ingestion First Aid: Rinse mouth with plenty of water. Induce vomiting (ONLY IN CONSCIOUS PERSON). Refer for medical attention.

5. FIRE FIGHTING MEASURES

Data For 100% Hazardous Chemical

Fire Acute Hazard:	Fire Prevention:	Fire Fighting:
Flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking. NO contact with oxidants.	Powder, alcohol-resistant foam, water spray, carbon dioxide.
Explosion Acute Hazard:		
Above 58°C explosive vapour/air mixtures may be formed.	Above 58°C use a closed system, ventilation.	In case of fire: keep drums, etc., cool by spraying with water.
CHEMICAL DANGERS:	The substance decomposes on heating or on burning producing toxic fumes including nitrogen oxides . Reacts violently with oxidants, nitrates and halogenated hydrocarbons. Attacks some plastic and rubber.	
PHYSICAL DANGERS:	Not Available	

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid contact with skin and clothing.
Environmental Precautions	No special environmental precautions required. Should not be released into the environment.
Method of Containment	Contain spill and then clean-up with copious amounts of water.
Methods of Clean-up	
Other Information	Not applicable

Data for 100% Hazardous Chemical

SPILLAGE DISPOSAL	Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or iner
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7. HANDLING AND STORAGE

Handling:	Handle in accordance with good industrial hygiene and safety practice.
Storage:	Store at 2 – 8°C.

Data for 100% Hazardous Chemical

STORAGE	Separated from strong oxidants, halogens .
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8. EXPOSURE CONTROL

Data for 100% Hazardous Chemical

• INHALATION	Ventilation, local exhaust, or breathing protection.
• EYES	Safety goggles or eye protection in combination with breathing protection.
• SKIN	Protective gloves. Protective clothing.
• INGESTION	Rinse mouth.

Engineering Controls Ensure adequate ventilation, especially in confined areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colorless solution.	
Physical State	Liquid	pH: Not Available

Data for 100% Hazardous Chemical

Boiling point: 153°C	Melting point: -61°C	Relative density (water = 1): 0.95	Solubility in water: miscible	Vapour pressure, Pa at 25°C: about 492	Relative density of the vapour/air-mixture at 20°C (air = 1): 1.00
Flash point: 58°C c.c.	Auto-ignition temperature: 445°C	Explosive limits, vol% in air: 2.2-15.2 at 100°C	Octanol/water partition coefficient as log Pow: -0.87		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions
Incompatibility Materials to Avoid	Oxidants, nitrates and halogenated hydrocarbons, Acid Chlorides, Chloroformates
Hazardous Decomposition Products	Carbon Monoxide, Carbon Dioxide, Nitrogen Oxides Data for 100% Dimethylformamide:- The substance decomposes on heating or on burning producing toxic fumes including nitrogen oxides .
Hazardous Polymerization	Will not occur

Data for 100% Hazardous Chemical

CHEMICAL DANGERS:	The substance decomposes on heating or on burning producing toxic fumes including nitrogen oxides . Reacts violently with oxidants, nitrates and halogenated hydrocarbons. Attacks some plastic and rubber.
PHYSICAL DANGERS:	Not Available

11. TOXICOLOGY MEASURES

Acute Toxicity

The toxicological risks are minor due to the low concentration of hazardous ingredients. The following toxicological information is for the hazardous ingredient in pure form.

LD50 Oral	Data for 100% Dimethylformamide:- LD50 oral rat: 2800 mg/kg Reference: Zeitschrift für Krebsforschung, Vol. 69, Pg. 103, 1967.
LD50 Dermal	Data for 100% Dimethylformamide:- LD50 dermal rat/rabbit: 4720 mg/kg Species: Rabbit Reference: American Industrial Hygiene Association Journal. Vol. 30, Pg. 470, 1969.
LC50 Inhalation	Data for 100% Dimethylformamide:- LC50 Fish (96 hours) Minimum: 7100 mg/l Maximum: 11300 mg/l Median: 10500 mg/l Study number: 8

Reference: Cardwell, R.D., D.G. Foreman, T.R. Payne, and D.J. Wilbur 1978. Acute and Chronic Toxicity of Four Organic Chemicals to Fish. U.S.EPA, Environ.Res.Lab., Duluth, MN; Contract 68-01-0711 (Unpublished):26 p.

Chronic Toxicity

Carcinogenicity	Not Applicable
Irritation	Skin and Eye Irritant
Corrosivity	Not Applicable
Sensitization	Not Applicable
Neurological Effects	Not Available
Mutagenic Effects	Not Available
Reproductive Effects	Data for 100% Dimethylformamide:- May damage the developing fetus.
Developmental Effects	Not Available
Target Organ Effects	Data for 100% Dimethylformamide:- Eyes, Skin and Respiratory tract, Liver, Kidneys
Other adverse effects	Effects of Short-Term Exposure: The substance is irritating to the eyes and respiratory tract. The substance may cause effects on the kidneys and central nervous system. This may result in renal failure and brain injury. Exposure could cause lowering of

consciousness.

Effects of long-term or repeated exposure: The substance may have effects on the central nervous system. This may result in abnormal eye movements (nysagmus).

12. ECOLOGICAL MEASURES

Ecotoxicity	<p>LC50 Crustaceans (48 hours)</p> <p>Minimum: 12300 mg/l Maximum: 14500 mg/l Median: 14400 mg/l</p> <p>Study number: 3</p> <p>Reference for median:</p> <p>Ziegenfuss, P.S., W.J. Renaudette, and W.J. Adams 1986. Methodology for Assessing the Acute Toxicity of Chemicals Sorbed to Sediments: Testing the Equilibrium Partitioning Theory. In: T.M.Poston and R.Purdy (Eds.), Aquatic Toxicology and Environmental Fate, 9th Volume, ASTM STP 921, Philadelphia, PA :479-493</p>
Persistence/Degradability	<p>Dimethylformamide rapidly degrades in water and is expected to degrade in soil. Ethylene glycol is biodegraded in soil 97-100% in 2-12 days.</p>
Mobility in Environmental Media	<p>Dimethylformamide is expected to have very high mobility based upon an estimated Koc of 7. Ethylene glycol is expected to have very high mobility based upon an estimated Koc of 0.2.</p>
Bioaccumulation/Accumulation	<p>Not Available</p>

13. DISPOSAL MEASURES

Waste Disposal Method:	<p>Collection of small amounts of substance: Place in a collection container for halogen-free organic solvents and solutions of halogen-free organic substances. Collection vessels must be clearly labelled with a systematic description of their contents and with the hazard symbol and the R and S phrases. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.</p>
Contaminated Packaging:	<p>Avoid contact with skin and clothing. Place contaminated packaging in a break proof outer vessel and dispose on in compliance with national and local regulations.</p>
US EPA Waste Number:	<p>Not Available</p>

14. TRANSPORTATION MEASURES

DOT:	Regulated: Hazard Class 3 DOT ID No.: UN2265
IATA:	Not Available
ADR (road)/ RID (rail):	Not Available
IMDG (sea):	Not Available
General Transport Regulations	<p>Data for 100% Dimethylformamide: UN-Number: 2265 Shipping name: N,N-Dimethylformamide Hazard Identification Number: 30 Class: 3 (Flammable Liquids) Packing Group: III (low danger) Danger Label: 3</p>

15. REGULATORY MEASURES

This product is a mixture that may contain one or more hazardous chemicals. The hazardous ingredients listed are only those as required by 29 CFR 1910.1200 (OSHA HCS).

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains the following chemical(s) subject to the reporting requirements of the Act and and Title 40n of the Code of Federal

Regulations, Part 372: Dimethyl formamide and Ethylene glycol

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (See 40 CFR 61)

This product contains N,N-Dimethylformamide and Ethylene Glycol which are subject to the reporting requirements of the Clean Air Act.

State Regulations**California Proposition 65:**

This product contains the following Proposition 65 chemicals: None Listed

State Right to Know Act

Chemical Name	N,N,- Dimethylformamide	Ethylene Glycol
Massachusetts	Listed	Listed
New Jersey	Listed	Listed
Pennsylvania	Listed	Listed
New York	Listed	Listed
Rhode Island	Listed	Listed

International Inventories

Chemical Name	N,N,- Dimethylformamide	Ethylene Glycol
TSCA	Listed	Listed
DSL	Listed	Listed
NDSL	Not Listed	Not Listed
EINECS	Listed	Listed
CHINA	Listed	Listed
KECL	Listed	Listed
JAPAN:	Listed	Listed
AICS	Listed	Listed

EU Regulations

Annex I Index#	Data for CAS# 68-12-2: 616-001-00-X Data for CAS# 107-21-1: 603-027-00-1
Classification	Repr. 1B: Reproductive toxicity H360D Acute Tox. 4 : H332 Acute Tox. 4 : H312 Eye Irrit. 2: H319 Acute Tox. 4 : H302
Risk Phrases	H360D: May damage the unborn child. H332: Harmful if inhaled H312: Harmful in contact with skin H319: Causes serious eye irritation H302: Harmful if swallowed.
Safety Phrases	P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P281: Use personal protective equipment as required. P264: Wash skin thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/ protective clothing / eye protection/ face protection.
Symbols and Indications of Danger	GHS08 GHS07 Danger
Specific Concentration Limits	Not Available
Export and Import	This substance is not listed in the Annex I of Regulation (EC) No 689/2008.

SDS #: 10002

X-Gal Substrate Solution

European Priority List

This substance is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of existing substances.).

16. OTHER INFORMATION

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. KPL shall not be held liable for any damage resulting from handling or from contact with the above product. Users should make their own investigations to determine the suitability of the information for their particular purposes. This material is sold for research purposes only. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals.

Revision Date: 7/22/2014