



# Safety Data Sheet

KPL X-Gal Substrate Solution

SDS-10002

Rev. Number: 2 Rev. Date: Jan 15, 2019

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product Description:	Product Code
KPL X-Gal Substrate Solution	5520-0031 (71-00-56)

### Hazardous Reagent

Product Description listed above

### Hazardous Reagent Product code

Catalog No. listed above

**Recommended Use:** Reference Reagent

**Contact Manufacturer:** SeraCare Life Sciences  
910 Clopper Road  
Gaithersburg, MD 20878

**Phone #:** (508) 244-6400  
US Toll Free: (800) 676-1881

**Fax #:** (508) 634-3394

**Web:** [www.seracare.com](http://www.seracare.com)

**Email:** [customerservice@seracare.com](mailto:customerservice@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)

## 2. HAZARD IDENTIFICATION

<b>Hazard Type</b>	Health Hazard
<b>GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)</b>	
<b>GHS Classification</b>	Flammable liquids (Category 3), H226 Acute toxicity, Inhalation (Category 4), H332 Acute toxicity, Dermal (Category 4), H312 Eye irritation (Category 2A), H319 Reproductive toxicity (Category 1B), H360
<b>Hazard Statements:</b>	H302: Harmful if swallowed H226 Flammable liquid and vapor. H312 + H332 Harmful in contact with skin or if inhaled H319 Causes serious eye irritation. H360 May damage fertility or the unborn child.
<b>Precautionary Statements:</b>	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P264 Wash skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P303 + P361 + P35 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P337 + P313 If eye irritation persists: Get medical advice/ attention. P363 Wash contaminated clothing before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.

P50 Dispose of contents/ container to an approved waste disposal plant.

**Hazards not otherwise classified or not covered by GHS:** Rapidly absorbed through skin.

**Symbols and Indications of Danger:**

GHS02

GHS07

GHS08

Danger



**Principle Route of Exposure:** The substance can be absorbed into the body by inhalation and through the skin.

**Acute Effects: Eye** May cause redness and irritation

**Acute Effects: Skin:** May be absorbed

**Acute Effects: Inhalation:** Abdominal pain; Diarrhea; Nausea. Vomiting; Facial flushing. .

**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.

**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.

**Ingestion:** Do not eat, drink, smoke when using this product.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CHEMICAL</u>	<u>% Weight</u>	<u>CAS #:</u>
X-Gal Substrate Solution	N,N,-Dimethylformamide C <sub>3</sub> H <sub>7</sub> NO	≤ 10%	68-12-2
	Ethylene Glycol	> 90%	107-21-1
	5-Bromo-4-Chloro-3-Indolyl-beta-D-Galactopyranoside	≤ 2%	7240-90-6
<b>GHS Classification</b>	EC-No: 200-679-5 Index-No.:616-001-00-X Flam. Liq. 3; Acute Tox. 4; Eye Irrit. 2A; Repr. 1B, H226, H312 + H332, H319, H360		

## 4. FIRST AID MEASURES

<b>General Advice:</b>	Wash contaminated clothing before reuse. Seek medical attention if necessary.
<b>Ingestion First Aid:</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
<b>Inhalation Exposure:</b>	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician
<b>Skin Exposure:</b>	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention
<b>Eye Exposure:</b>	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

## 5. FIRE FIGHTING MEASURES

<b>Extinguishing media:</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Unusual Fire and Explosive Hazards:</b>	Not Available
<b>Flash Point:</b>	Closed cup: 58°C
<b>Auto ignition Temperature:</b>	Not Available
<b>Flammability Statement:</b>	Not Available
<b>Specific hazards arising from the chemical:</b>	Not available
<b>Protective equipment and precautions for firefighters:</b>	Wear self-contained breathing apparatus for firefighting if necessary: keep drums, etc., cool by spraying with water.

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.
<b>Environmental Precautions:</b>	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
<b>Method of Containment and Clean-up</b>	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13)

## 7. HANDLING AND STORAGE

<b>Handling:</b>	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.
<b>Storage:</b>	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Handle and store under inert gas. Storage class (TRGS 510): Flammable liquids

## 8. EXPOSURE CONTROL

<b>Respiratory Protection:</b>	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government
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standards such as NIOSH (US) or CEN (EU).

**Eye Protection:** Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

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

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Nature latex/chloroprene Minimum layer thickness: 0.6 mm Break through time: 65 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Ingestion:** Do not eat, drink, or smoke during handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear, Colorless Solution

**Physical State:** Liquid

**Odor:** Not Available

**Odor Threshold:** Not Available

**pH:** Not Available

**Boiling Point:** 153°C

**Melting Point:** - 61°C

**Evaporation Rate:** Not Available

**Vapor Density:** 20°C (air = 1): 1.00

**Vapor Pressure:** Pa at 25°C: about 492

**Relative Density:** (water = 1) 0.95

**Auto-Ignition Temperature:** 445°C

**Water Solubility:** miscible

**Flash Point:** 58°C – closed cup

**Viscosity:** Not Available

**Oxidizing Properties:** Not Available

**Explosive Properties:** vol% in air: 2.2-15.2 at 100°C

## 10. STABILITY AND REACTIVITY

<b>Chemical Stability:</b>	This material is stable under recommended storage conditions.
<b>Conditions to avoid:</b>	Avoid excess heat, sources of ignition and direct sunlight.
<b>Incompatibility Materials to Avoid:</b>	Strong Oxidizing agents
<b>Hazardous Decomposition Products:</b>	Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
<b>Hazardous Polymerization:</b>	Not Available
<b>Possibility of hazardous reactions:</b>	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.

<b>LD50 Oral:</b>	Rat - 2,800 mg/kg
<b>LD50 Dermal:</b>	Rabbit - 1,500 mg/kg
<b>LC50 Inhalation:</b>	4 h - 9 - 15 mg/L

### Chronic Toxicity

<b>Carcinogenicity:</b>	This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
<b>Irritation:</b>	An eye and skin irritant
<b>Corrosivity:</b>	No Data Available
<b>Sensitization:</b>	No Data Available
<b>Neurological Effects:</b>	No Data Available
<b>Mutagenic Effects:</b>	No Data Available
<b>Reproductive Effects:</b>	May cause congenital malformation in the fetus
<b>Developmental Effects:</b>	No Data Available
<b>Target Organ Effects:</b>	Eyes, Skin, and Respiratory Tract, Liver and Kidneys
<b>Other adverse effects:</b>	RTECS: LQ2100000  Warning: intolerance for alcohol can occur up to 4 days after N,N-dimethylformamide exposure. N,N-dimethylformamide is considered to be a potent liver toxin., Vomiting, Diarrhea, Abdominal pain. The chemical, physical, and toxicological properties have not been thoroughly investigated.

## 12. ECOLOGICAL MEASURES

<b>Ecotoxicity: Toxicity to Fish</b>	LC50 - Oncorhynchus mykiss (rainbow trout) - 9,000 - 13,000 mg/l - 96 h LC50 - Lepomis macrochirus (Bluegill) - 6,700 - 7,500 mg/l - 96 h LC50 - Pimephales promelas (fathead minnow) - 10,400 - 10,800 mg/l - 96 h LC50 - Oncorhynchus mykiss (rainbow trout) - 9,800 mg/l - 96 h LC50 - Lepomis macrochirus (Bluegill) - 6,300 mg/l - 96 h LC50 - Pimephales promelas (fathead minnow) - 10,600 mg/l - 96 h
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<b>Ecotoxicity: Toxicity to daphnia and other aquatic invertebrates</b>	EC50 - Daphnia magna (Water flea) - 9,600 - 13,100 mg/l - 48 h EC50 - Daphnia magna (Water flea) - 15,700 mg/l - 48 h
<b>Ecotoxicity: Algae</b>	LC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 96 h
<b>Persistence/Degradability:</b>	> 90% Readily biodegradable
<b>Mobility in Environmental Media:</b>	No Data Available
<b>Bioaccumulation/Accumulation:</b>	No Data Available

### 13. DISPOSAL MEASURES

<b>Waste Disposal Method:</b>	Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
<b>Contaminated Packaging:</b>	Dispose of in compliance with the respective national and local regulations.
<b>US EPA Waste Number:</b>	Not Available

### 14. TRANSPORTATION MEASURES

<b>DOT:</b>	UN number: 2265, Class: 3 Packing group: III Proper shipping name: N,N-Dimethylformamide Reportable Quantity (RQ):100 lbs
<b>IATA:</b>	UN number: 2265, Class: 3 Packing group: III Proper shipping name: N,N-Dimethylformamide
<b>ADR (road)/ RID (rail):</b>	Not Available
<b>IMDG (sea):</b>	UN number: 2265, Class: 3 Packing group: III Proper shipping name: N,N-Dimethylformamide
<b>General Transport Regulations</b>	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

### 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 no chemical or chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372.

**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

This product contains the following Proposition 65 chemicals: N,N-Dimethylformamide.  
Type of Toxicity: Cancer. CAS No. 68-12-2. Listed: 27 Oct 2017  
Ethylene Glycol (ingested) Type of Toxicity: Developmental CAS No. 107-21-1 Listed: 19-Jun-2015

**State Right to Know Act**

Chemical Name	N,N,-Dimethylformamide	Ethylene Glycol	5-Bromo-4-Chloro-3-Indolyl-beta-D-Galactopyranoside
Massachusetts:	Listed	Listed	Not Listed
New Jersey:	Listed	Listed	Listed
Pennsylvania:	Listed	Listed	Listed
New York:	Listed	Listed	Not Listed
Rhode Island:	Listed	Listed	Not Listed

**International Inventories**

Chemical Name	N,N,-Dimethylformamide	Ethylene Glycol	5-Bromo-4-Chloro-3-Indolyl-beta-D-Galactopyranoside
US(TSCA):	Listed	Listed	Not Listed
Canada(DSL):	Listed	Listed	Listed
Canada (NDSL):	Not Listed	Not Listed	Not Listed
Europe(EINECS):	Listed	Listed	Listed
CHINA(ISCSC):	Listed	Listed	Listed
Korea(KECL):	Listed	Listed	Not Listed
JAPAN(ENCS):	Listed	Listed	Listed
Australia (AICS):	Listed	Listed	Not 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:** Flammable liquids (Category 3), H226

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 4), H312

Eye irritation (Category 2A), H319

Reproductive toxicity (Category 1B), H360

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) Regulation (EC) No

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1272/2008

**REACH (EU) 1907/2006**

This Product contains N,N-Dimethylformamide (conc. > 1%); CAS # 68-12-2, included in the Candidate List of Substances of Very High Concern (SVHC)

Flam. Liq. 3; Acute Tox. 4; Eye Irrit. 2A; Repr. 1B; H226, H312 + H332, H319, H360 90 - 100 %

Acute Tox. Acute toxicity Eye Irrit. Eye irritation Flam. Liq. Flammable liquids H226  
Flammable liquid and vapor.  
H312 Harmful in contact with skin.  
H312 + H332 Harmful in contact with skin or if inhaled  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H360 May damage fertility or the unborn child.

**Symbols and Indications of Danger:**

GHS02  
GHS07  
GHS08  
Danger

**Specific Concentration Limits:** Not Applicable

**Export and Import** This substance is not listed in the Annex I of PIC Regulation (EU 649/2012)

## 16. OTHER INFORMATION

The above information is believed to be accurate, complete and current but does not purport to be all inclusive and shall be used as a guide. SeraCare Life Sciences makes no representation or warranties with respect to the product described herein, including but not limited to any implied warranties or merchantability or fitness for a particular use. SeraCare assumes no liability or responsibility and authorizes no other person to assume any additional liability or responsibility as a result of the use of this product or the information contained in the Safety Data Sheet.

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