

11/15/2020

### Kit Components

Product code	Description
--------------	-------------

<b>V3941</b>	<b>X-Gal, 100mg</b>
--------------	---------------------

Components:

V394	X-Gal
------	-------



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

**1 Identification**

**Product identifier**

**Trade name:** X-Gal

**Article number:** V394

**Application of the substance / the mixture** For Laboratory Use

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Promega Corporation  
2800 Woods Hollow Road  
Madison, WI 53711  
U.S.A.  
1-800-356-9526 or (608)-274-4330

**Information department:**

SDS author: [ChemicalRegulatory@promega.com](mailto:ChemicalRegulatory@promega.com)  
Promega Corporation  
2800 Woods Hollow Road  
Madison, WI 53711  
U.S.A.  
1-800-356-9526 or (608)-274-4330

**Emergency telephone number:**

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

**2 Hazard(s) identification**

**Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS08 Health hazard

Carc. 1B H350 May cause cancer.

Repr. 1B H360 May damage fertility or the unborn child.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

**Label elements**

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 1)

**Hazard pictograms**

GHS02 GHS07 GHS08

**Signal word** *Danger***Hazard-determining components of labeling:***N,N*-dimethylformamide**Hazard statements***Flammable liquid and vapor.**Causes serious eye irritation.**May cause cancer.**May damage fertility or the unborn child.***Precautionary statements***Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**Keep away from heat/sparks/open flames/hot surfaces. - No smoking.**Keep container tightly closed.**Ground/bond container and receiving equipment.**Use explosion-proof electrical/ventilating/lighting/equipment.**Use only non-sparking tools.**Take precautionary measures against static discharge.**Wash thoroughly after handling.**Wear protective gloves/protective clothing/eye protection/face protection.**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.**Continue rinsing.**IF exposed or concerned: Get medical advice/attention.**If eye irritation persists: Get medical advice/attention.**In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.**Store in a well-ventilated place. Keep cool.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Classification system:****NFPA ratings (scale 0 - 4)***Health = 2**Fire = 3**Reactivity = 1***HMIS-ratings (scale 0 - 4)***Health = \*2**Fire = 3**Reactivity = 1***OSHA Hazard Overview (Criteria according to 29CFR1910.1200):***Irritant**Combustible**Reproductive Hazard***Primary route(s) of entry:***Dermal**Inhalation***Target Organ(s):***May cause Liver damage (Hepatotoxin)**May affect Reproductive System (Mutagen, Teratogen)*

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 2)

*May cause Kidney damage (Nephrotoxin)***Other hazards****Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

### 3 Composition/information on ingredients

**Chemical characterization: Mixtures****Description:**

The product is made up of a mixture of non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

**Dangerous components:**

68-12-2 N,N-dimethylformamide

75-100%

**Additional information:** For the wording of the listed risk phrases refer to section 15.

### 4 First-aid measures

**Description of first aid measures****General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

**After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

Seek medical treatment in case of complaints.

**After skin contact:** Immediately wash with water and soap and rinse thoroughly.

**After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

**After swallowing:** If the patient feels unwell or is concerned, obtain medical advice.

**Information for doctor:****Most important symptoms and effects, both acute and delayed**

None

No further relevant information available.

**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

### 5 Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

**Special hazards arising from the substance or mixture**

None known

No further relevant information available.

**Advice for firefighters** In the case of fire, wear respiratory protective equipment and chemical protective suit.

**Protective equipment:** Mouth respiratory protective device.

US

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 3)

## 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Remove persons from danger area.

Wear protective clothing.

**Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

### Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to Section 13.

Ensure adequate ventilation.

### Reference to other sections

See Section 7 for information on safe handling.

See Section 13 for disposal information.

## 7 Handling and storage

### Handling:

#### Precautions for safe handling

Keep receptacles tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

**Information about protection against explosions and fires:** Keep respiratory protective device available.

#### Conditions for safe storage, including any incompatibilities

#### Storage:

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** Keep receptacle tightly sealed.

**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

### Control parameters

#### Components with limit values that require monitoring at the workplace:

#### 68-12-2 N,N-dimethylformamide

PEL Long-term value: 30 mg/m<sup>3</sup>, 10 ppm

Skin

REL Long-term value: 30 mg/m<sup>3</sup>, 10 ppm

Skin

TLV Long-term value: 15 mg/m<sup>3</sup>, 5 ppm

Skin; BEI

(Contd. on page 5)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 4)

**Ingredients with biological limit values:****68-12-2 N,N-dimethylformamide**

BEI	15 mg/L Medium: urine Time: end of shift Parameter: N-Methylformamide
	40 mg/L Medium: urine Time: prior to last shift of workweek Parameter: N-Acetyl-S-(N-methylcarbamoyl) cysteine (semi-quantitative)

**Additional information:** The lists that were valid during the creation were used as basis.

**Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

Ensure that washing facilities are available at the work place.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Pregnant women should strictly avoid inhalation or skin contact.

Do not eat or drink while working.

Clean skin thoroughly immediately after handling the product.

**Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

**Protection of hands:**

Protective gloves

Select the glove material considering penetration time, rate of diffusion and degradation time.

It is recommended that the selected protective gloves be tested and approved under NIOSH or EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:**

Safety glasses

Use equipment for eye protection tested and approved under government NIOSH standards.

## \* 9 Physical and chemical properties

**Information on basic physical and chemical properties****General Information****Appearance:**

<b>Form:</b>	Fluid
<b>Color:</b>	Colorless
<b>Odor:</b>	Not determined
<b>Odor threshold:</b>	Not determined.

(Contd. on page 6)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 5)

<b>pH-value at 20 °C (68 °F):</b>	7
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	-61 °C (-77.8 °F)
<b>Boiling point/Boiling range:</b>	152 °C (305.6 °F)
<b>Flash point:</b>	23 - 60 °C (73.4 - 140 °F)
<b>Flammability (solid, gaseous):</b>	Not applicable.
<b>Ignition temperature:</b>	440 °C (824 °F)
<b>Decomposition temperature:</b>	Not determined.
<b>Auto igniting:</b>	Product is not selfigniting.
<b>Danger of explosion:</b>	Product does not present an explosion hazard. Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
<b>Explosion limits:</b>	
<b>Lower:</b>	2.2 Vol %
<b>Upper:</b>	16 Vol %
<b>Vapor pressure at 20 °C (68 °F):</b>	3.5 hPa (2.6 mm Hg)
<b>Density at 20 °C (68 °F):</b>	0.96 g/cm <sup>3</sup> (8.0112 lbs/gal)
<b>Relative density</b>	Not determined.
<b>Vapor density</b>	Not determined.
<b>Evaporation rate</b>	Not determined.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Not miscible or difficult to mix.
<b>Partition coefficient (n-octanol/water):</b>	Not determined.
<b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
<b>Organic solvents:</b>	95.0 %
<b>VOC content:</b>	0.00 %
<b>Solids content:</b>	5.0 %
<b>Other information</b>	No further relevant information available.

## \* 10 Stability and reactivity

**Reactivity** No further relevant information available.

**Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:** No dangerous decomposition products known.

US  
(Contd. on page 7)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 6)

## 11 Toxicological information

### Information on toxicological effects

#### Acute toxicity:

#### LD/LC50 values that are relevant for classification:

#### 68-12-2 N,N-dimethylformamide

Oral	LD50	7,600 mg/kg (Rat)
Dermal	LD50	5,000 mg/kg (Rabbit)
Inhalative	LC50/4 h	9,400 mg/l (Mouse)

#### Primary irritant effect:

**on the skin:** No data available.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

#### Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

#### Carcinogenic categories

#### IARC (International Agency for Research on Cancer)

68-12-2	N,N-dimethylformamide	2A
---------	-----------------------	----

#### NTP (National Toxicology Program)

None of the ingredients are listed.

#### OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

## 12 Ecological information

### Toxicity

#### Aquatic toxicity:

Not available

No further relevant information available.

#### Persistence and degradability

Not available

No further relevant information available.

#### Bioaccumulative potential

Not known

No further relevant information available.

**Mobility in soil** No further relevant information available.

#### Ecotoxicological effects:

**Remark:** Not available

#### Additional ecological information:

**General notes:** No data available.

#### Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

US

(Contd. on page 8)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 7)

## 13 Disposal considerations

### Waste treatment methods

#### Recommendation:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

#### Uncleaned packagings:

**Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

### UN-Number

DOT, ADR, IMDG, IATA

UN2265

### UN proper shipping name

DOT

N,N-Dimethylformamide

ADR

2265 N,N-DIMETHYLFORMAMIDE

IMDG, IATA

N,N-DIMETHYLFORMAMIDE

### Transport hazard class(es)

DOT



Class

3 Flammable liquids

Label

3

ADR



Class

3 (F1) Flammable liquids

Label

3

IMDG, IATA



Class

3 Flammable liquids

Label

3

### Packing group

DOT, ADR, IMDG, IATA

III

### Environmental hazards:

Marine pollutant:

No

### Special precautions for user

Warning: Flammable liquids

(Contd. on page 9)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 8)

**Hazard identification number (Kemler code):** 30  
**EMS Number:** F-E,S-D  
**Stowage Category** A

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

**Transport/Additional information:**

**ADR**  
**Excepted quantities (EQ)** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

**IMDG**  
**Limited quantities (LQ)** 5L  
**Excepted quantities (EQ)** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

**UN "Model Regulation":** UN 2265 N,N-DIMETHYLFORMAMIDE, 3, III

## 15 Regulatory information

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

**Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):**

68-12-2 | N,N-dimethylformamide

**TSCA (Toxic Substances Control Act) Inventory:**

68-12-2 | N,N-dimethylformamide

**Hazardous Air Pollutants**

68-12-2 | N,N-dimethylformamide

**Proposition 65****Chemicals known to cause cancer:**

68-12-2 | N,N-dimethylformamide

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**Carcinogenicity categories****EPA (Environmental Protection Agency)**

None of the ingredients are listed.

**TLV (Threshold Limit Value established by ACGIH)**

68-12-2 | N,N-dimethylformamide

A4

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/15/2020

Reviewed on 11/11/2020

Trade name: X-Gal

(Contd. of page 9)

## NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

**Signal word** Danger

**Hazard-determining components of labeling:**

*N,N*-dimethylformamide

**Hazard statements**

Flammable liquid and vapor.

Causes serious eye irritation.

May cause cancer.

May damage fertility or the unborn child.

**Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

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

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing SDS:**

Promega Corporation

Chemical Regulatory Department

2800 Woods Hollow Road

Madison, WI

Ph: (608)274-4330

**Date of preparation / last revision** 11/15/2020 / 1.0

**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

(Contd. on page 11)

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 11/15/2020

Reviewed on 11/11/2020

**Trade name: X-Gal**

(Contd. of page 10)

*IATA: International Air Transport Association*  
*ACGIH: American Conference of Governmental Industrial Hygienists*  
*EINECS: European Inventory of Existing Commercial Chemical Substances*  
*ELINCS: European List of Notified Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*NFPA: National Fire Protection Association (USA)*  
*HMIS: Hazardous Materials Identification System (USA)*  
*VOC: Volatile Organic Compounds (USA, EU)*  
*LC50: Lethal concentration, 50 percent*  
*LD50: Lethal dose, 50 percent*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*NIOSH: National Institute for Occupational Safety*  
*OSHA: Occupational Safety & Health*  
*TLV: Threshold Limit Value*  
*PEL: Permissible Exposure Limit*  
*REL: Recommended Exposure Limit*  
*BEI: Biological Exposure Limit*  
*Flam. Liq. 3: Flammable liquids – Category 3*  
*Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A*  
*Carc. 1B: Carcinogenicity – Category 1B*  
*Repr. 1B: Reproductive toxicity – Category 1B*  
**\* Data compared to the previous version altered.**

US