



MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY INFORMATION

- ◆ **Product name:** X-Gal.
- ◆ **Catalog number:** XG10500, XG11000
- ◆ **Chemical name or synonyms:** 5-bromo-4-chloro-3-indolyl- β -D-galactopyranoside
- ◆ **Contact:**

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SECTION 2 – HAZARDS IDENTIFICATION

• Classification of the substance or mixture:



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS08 Health hazard

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).

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 damage fertility or the unborn child.

Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use explosion-proof electrical/ventilating/lighting/equipment. Wear protective gloves / eye protection / face protection. Ground/bond container and receiving equipment. Keep container tightly closed. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

IF ON SKIN (or hair): Remove/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: CO₂, powder or water spray.

Store locked up. Store in a well-ventilated place. Keep cool.

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

• **Other hazards**

· Results of PBT and vPvB assessment ·
 PBT: Not applicable. · vPvB: Not applicable.

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

<u>Ingredient name</u>	<u>CAS number</u>	<u>EINECS</u>
5-bromo-4-chloro-3-indolyl-β-D-galactopyranoside	7240-90-6	-
N,N-dimethylformamide	68-12-2	200-679-5

N,N-Dimethylformamide: ORAL (LD50): Acute: 2800 mg/kg [Rat]. 2900 mg/kg [Mouse]. 5000 mg/kg [Rabbit]. DERMAL (LD50): Acute: 4720 mg/kg [Rabbit].

SECTION 4 – FIRST AID MEASURES

◆ Effects and symptoms:

- *Inhalation* May cause irritation to the respiratory tract. Symptoms may include coughing, sore throat, difficult breathing and chest pain.
- *Ingestion* May be harmful if swallowed. Symptoms may include nausea, vomiting and diarrhea.
- *Skin contact* May cause irritation with redness and pain. May be absorbed through the skin with possible systemic effects.
- *Eye contact* May cause irritation, redness and pain.
- *Aggravating conditions* Repeated or prolonged exposure is not known to aggravate medical conditions.

◆ First-Aid measures:

- *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately.
- *Ingestion* Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- *Skin contact* In case of contact, immediately flush skin with plenty of water while removing contaminated clothing and shoes. Wash clothes before reuse. Get medical attention immediately.
- *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
- *Notes to physician* Not available.
- *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- ◆ **Flammability of the product:** May be combustible at high temperature.
- ◆ **Flash Point:** Not available.
- ◆ **Fire hazards in presence of various substances:** Not considered to be flammable.
- ◆ **Fire fighting media and instructions:** Use dry chemical, CO₂, water spray or foam.
- ◆ **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- ◆ **Hazardous thermal decomposition products:** Burning produces irritant fumes (nitrogen oxides, carbon oxides, halogens).

SECTION 6 – ACCIDENTAL RELEASE MEASURES

• **Personal precautions, protective equipment and emergency procedures**

Not required.

• **Environmental precautions:**

Do not allow product to reach sewage system or any water course. Inform respective authorities in case of seepage into water course or sewage system. 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 item 13. Ensure adequate ventilation.

• **Reference to other sections**

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment.

SECTION 7 – HANDLING AND STORAGE

- ◆ **Handling:** Avoid breathing vapors or spray mists. Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment.
- ◆ **Storage:** Keep container tightly closed. Store at – 20°C. Protect from light.
- ◆ **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- ◆ **Packaging materials**
- Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Components with limit values that require monitoring at the workplace:

	CAS: 68-12-2 N,N-dimethylformamide
PEL Long-term value:	30 mg/m ³ , 10 ppm Skin
REL Long-term value:	30 mg/m ³ , 10 ppm Skin
TLV Long-term value:	30 mg/m ³ , 10 ppm Skin; BEI

• **Ingredients with biological limit values:**

	CAS: 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. (Contd. on page 5)US

• **Exposure controls**

• **Personal protective equipment:**

• **General protective and hygienic measures:**

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. •

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

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

• **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. •

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. •

Eye protection:

Tightly sealed goggles

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- ◆ **Appearance**
 - **Physical State:** Liquid.
 - **Color:** Yellow.
 - **Odor:** Not available.
 - **Taste:** Not available.
- ◆ **Molecular weight:** Not available.
- ◆ **Molecular formula:** Not available
- ◆ **pH:** Not available
- ◆ **Melting point:** Not available.
- ◆ **Decomposition temperature:** Not available
- ◆ **Flash point:** Not available.
- ◆ **Solubility:** Soluble in water.

SECTION 10 – STABILITY AND REACTIVITY

- ◆ **Stability and reactivity:** The product is stable under recommended storage conditions.
- ◆ **Conditions to avoid:** Exposure to light and moisture over prolonged periods, heat, flames, ignition sources.
- ◆ **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- ◆ **Hazardous polymerization:** Will not occur.
- ◆ **Hazardous decomposition products:** Carbon oxides, Nitrogen oxides (NO_x), halogens.
- ◆ **Remarks on reactivity:** N,N-dimethylformamide can react vigorously with oxidizing agents, halogenated hydrocarbons, and inorganic nitrates. Incompatible with carbon tetrachloride, alkyl aluminums, sodium tetrahydroborate, nitrates, chromic acid, diisocyanatomethane, triethylaluminum, sodium hydride, lithium azide, metallic sodium, bromine, magnesium nitrate, potassium permanganate, nitric acid, chromium trioxide, borohydrides, phosphorus trioxide, diborane, octafluoroisobutyrate, sodium nitrite, perchloryl fluoride, potassium methyl 4,4'-dinitrobutyrate. Reaction with inorganic acid chlorides, such as phosphorous oxychloride and thionyl chloride, may form dimethylcarbamoyl, a suspect carcinogen. May release dimethylamine and carbon monoxide if heated above 350 °C (662°F).

SECTION 11 – TOXICOLOGICAL INFORMATION

• **Information on toxicological effects**• **Acute toxicity:**• **LD/LC50 values that are relevant for classification:**

CAS: 68-12-2 N,N-dimethylformamide

Oral LD50 2800 mg/kg (rat)

Dermal LD50 4720 mg/kg (rabbit)

Inhalative LC50/4 h 9400 mg/l (mouse)

• **Primary irritant effect:**

on the skin: No irritant effect. ·

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)**

NTP (National Toxicology Program)

OSHA-Ca (Occupational Safety & Health Administration)

CAS: 68-12-2 N,N-dimethylformamide 3

None of the ingredients is listed.

None of the ingredients is listed.

SECTION 12 – ECOLOGICAL INFORMATION

Toxicity**Aquatic toxicity:** No further relevant information available. ·**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available. ·**Mobility in soil** No further relevant information available.

Additional ecological information:**General notes:**

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

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. ·

Results of PBT and vPvB assessment · PBT: Not applicable. **· vPvB:** Not applicable.**SECTION 13 – DISPOSAL CONSIDERATIONS**

◆ Waste stream:	Not available.
◆ Waste disposal method:	Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
◆ European waste catalogue (EWC):	Not available.
◆ Hazardous waste:	Will not occur.

SECTION 14 – TRANSPORT INFORMATION

UN-Number	UN2265
DOT, IMDG, IATA	
UN proper shipping name	
DOT	N,N-Dimethylformamide mixture
IMDG, IATA	N,N-DIMETHYLFORMAMIDE mixture
Transport hazard class(es)	
DOT	
Class	3 Flammable liquids
Label	3
IMDG, IATA	
Class	3 Flammable liquids
Label	3
Packing group	
DOT, IMDG, IATA	III
Environmental hazards:	Not applicable. ·
Special precautions for user	Warning: Flammable liquids
Danger code (Kemler):	30
EMS Number:	F-E,S-D
Transport in bulk according to Annex II of MARPOL/73/78 and the IBC Code	
Transport/Additional information:	Not applicable.
DOT	
Quantity limitations	On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L
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 MIXTURE, 3, III

SECTION 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 is listed. ·

Section 313 (Specific toxic chemical listings):

CAS: 68-12-2 N,N-dimethylformamide

TSCA (Toxic Substances Control Act):

CAS: 68-12-2 N,N-dimethylformamide

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

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)

CAS: 68-12-2 N,N-dimethylformamide

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

None of the ingredients is listed.

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Hazard pictograms

GHS02



GHS07



GHS08

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• **Hazard statements**

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• **Other hazards**

• Results of PBT and vPvB assessment •

PBT: Not applicable. • vPvB: Not applicable.

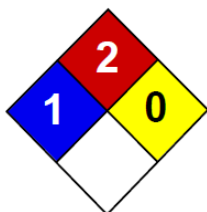
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SECTION 16 – OTHER INFORMATION

◆ **Hazardous Material Information System (U.S.A.):**

Health	2
Fire hazard	2
Reactivity	0
Personal protection	E

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 22-May-2014

Last Revision Date: 29-Aug-2016

Revision note: New format. updated Section 2,8,15,16.

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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