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DOCUMENT #: F/RPI/QC 7.7.3-02	PRODUCT NAME: X-GAL 50 mg/ml Solution	RPI ITEM NO: B71825	

SECTION 1 - CHEMICAL IDENTIFICATION

PRODUCT NAME: X-GAL 50 mg/ml Solution (X-GAL Solution in DMF)
 RPI CATALOG #: B71825
 SUPPLIER'S NAME: Research Products International Corp.
 SUPPLIERS ADDRESS: 410 N Business Center Drive Mount Prospect, IL 60056
 EMERGENCY CONTACT: 1-800-424-9300
 OTHER INFORMATION: 847-635-7330

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

H226	Flammable liquids	Category 3
H302	Acute toxicity, Oral	Category 4
H312	Acute toxicity, dermal	Category 4
H319	Serious eye damage/eye irritation	Category 2
H332	Acute toxicity, inhalation	Category 4
H360	Reproductive toxicity	Category 1
H372	Specific target organ toxicity - repeated exposure	Category 1
H402	Acute aquatic toxicity	Category 3
H410	Hazardous to the aquatic environment, Long term hazard	Category 1

2.2 GHS Label elements, including Hazard and Precautionary Statement(s)

Pictogram



Signal word: Danger

Hazard statement(s)

H226	Flammable liquid and vapour
H302	Harmful if swallowed
H312	Harmful in contact with skin
H319	Cause Serious Eye irritation
H332	Harmful if inhaled
H360	May damage fertility or the unborn
H372	Causes damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects.

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Prevention, Response, Storage and Disposal Precautionary Statement(s)

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
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P321	Specific treatment (see supplemental first aid instructions on this label).
P337+P313	If eye irritation persists: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

SECTION 3- COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	EINECS #	Composition %age
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N,N-DIMETHYLFORMAMIDE (DMF)	68-12-2	200-679-5	95.0
X-GAL	7240-90-6	230-640-8	5.0

SECTION 4 - FIRST-AID MEASURES

4.1 Description of first aid measures

General advice: Consult a doctor and show this safety data sheet.

- If inhaled:** Remove to fresh air and monitor breathing. If breathing becomes difficult, give oxygen. If breathing stops, give artificial respiration. Consult a doctor.
- In case of skin contact:** Immediately wash skin with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing and shoes and wash before reuse. Consult a doctor.
- In case of eye contact:** Flush with copious amounts of water for at least 15 minutes. Consult a doctor.
- If swallowed:** Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Consult a doctor.

4.2 Most important symptoms and effects, both acute and delayed: To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

4.3 Indication of immediate medical attention and special treatment needed: Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.2 Special hazards arising from the substance or mixture: Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas, Hydrogen bromide gas.

5.3 Precautions for fire-fighters: Wear suitable protective clothing to prevent contact with skin and eyes and self-contained breathing apparatus.

5.4 Further information: No data available

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Do not take action without suitable protective clothing - see section 8 of SDS. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing vapors, mist, dust or gas.

6.2 Environmental precautions: Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up: Cover spillage with suitable absorbent material. Using non-spark tools, sweep up material and place in an appropriate container. Decontaminate spill site with 10% caustic solution and ventilate area until after disposal is complete. Hold all material for appropriate disposal as described under section 13 of SDS.

6.4 Reference to other sections: For required PPE see section 8. For disposal see section 13.

SECTION 7 - HANDLING AND STORAGE

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7.1 Precautions for safe handling: Use in a chemical fume hood, with air supplied by an independent system. Avoid inhalation, contact with eyes, skin and clothing. Avoid the formation of dust and aerosols. Use in a well-ventilated area. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

7.2 Conditions for safe storage, including any incompatibilities: Store in cool, well-ventilated area. Keep away from direct sunlight. Keep container tightly sealed until ready for use. Keep in a dry place. Recommended storage temperature: -20 °C.

7.3 Specific end use(s): Use in a laboratory fume hood where possible. Refer to employer's COSHH risk assessment.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters:

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Dimethylformamide	TWA: 10 ppm Skin	(Skin (Vacated) TWA: 10 ppm (Vacated) TWA: 30 mg/m ³ Skin TWA: 10 ppm TWA: 30 mg/m ³	IDLH: 500 ppm TWA: 10 ppm TWA: 30 mg/m ³
Component	Quebec	Mexico OEL (TWA)	Ontario TWA EV
Dimethylformamide	TWA: 10 ppm TWA: 30 mg/m ³ Skin	TWA: 10ppm TWA: 30 mg/m ³ STEL: 20 ppm STEL: 60 mg/m ³	TWA: 10ppm Skin

- ❖ **ACGIH:** American Conference of Governmental Industrial Hygienists.
- ❖ **OSHA:** Occupational Safety and Health Administration.
- ❖ **NIOSH IDLH:** The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health.

8.2 Exposure Controls

- i. **Appropriate engineering controls:** Use in a fume hood where applicable. Ensure all engineering measures described under section 7 of SDS are in place. Ensure laboratory is equipped with a safety shower and eye wash station.

8.3 Personal protective equipment

- i. **Eye/face 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).
- ii. **Skin protection:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166
- iii. **Body Protection:** Wear appropriate protective clothing. Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- iv. **Respiratory Protection:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

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v. **Control of environmental exposure:** Do not let product enter drains

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid	Vapor Pressure	4.9 mbar @20 °C
Odor	Odorless	Vapor Density	2.5
Odor Threshold	No Data Available	Relative Density	0.945
pH	No Data Available	Water Solubility	Soluble
Melting / Freezing Point	No Data Available	Partition Coefficient	No Data Available
Initial Boiling Point Range	153°C	Auto-Ignition Temperature	445°C
Flash Point	58°C	Decomposition Temperature	>350°C
Evaporation Rate	0.17	Viscosity	0.8 mPa.s at 20 °C
Flammability (Solid, Gas)	No Data Available	Explosive Properties	No Data Available
Upper / Lower Flammability Or Explosive Limits	Upper:15.2 Vol% Lower: 2.2 Vol%	Oxidizing Properties	No Data Available

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Hazardous Decomposition Products: Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2).

Incompatibilities: Strong Oxidizing Agents, Halogens, Halogenated Compounds, Reducing Agents

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dimethylformamide	3040 mg/kg (Rat)	1500 mg/kg (Rabbit)	DUST VALUE: 9400 mg/m ³ /24 (mouse) VAPOR VALUE: 3421 ppm/h (rat)

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity

Component	Freshwater Fish	Freshwater Alga	Water Flea	Microtox
Dimethylformamide	Pimephales promelas: LC50 = 10.6 g/L/96h Oncorhynchus mykiss: LC50 = 9.8 g/L/96h Lepomis macrochirus: LC50 = 6.3 g/L/96h	EC50 = 7500 mg/L/96h	EC50 = 7500 mg/L 48h	EC50 = 2000mg/L 5 Min EC50 = 570 mg/L 240 h

Mobility

Component	log Pow
Dimethylformamide	-1.028

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Persistence and degradability/ Bioaccumulative potential: No data available

Results of PBT and vPvB assessment: No data available

Other adverse effects: No data available

Chronic Toxicity: There are no known carcinogenic chemicals in this product

SECTION 13 - DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

SECTION 14 - TRANSPORT INFORMATION

	UN#	Proper Shipping Name	Hazard Class	Packaging Group
DOT	2265	Flammable Liquid, NOS, (Dimethylformamide + X-GAL)	3	III
TDG	2265	Flammable Liquid, NOS, (Dimethylformamide + X-GAL)	3	III
IATA	2265	Flammable Liquid, NOS, (Dimethylformamide + X-GAL)	3	III
IMDG/IMO	2265	Flammable Liquid, NOS, (Dimethylformamide + X-GAL)	3	III

SECTION 15 - REGULATORY INFORMATION

INTERNATIONAL INVENTORIES

INGREDIENT: X-GAL						CAS #:7240-90-6		EINECS#:230-640-8	
TSCA	DSL	NDSL	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
-	Listed	-	-	-	-	-	-	Listed	-

INGREDIENT: N,N-DIMETHYLFORMAMIDE (DMF)						CAS #:68-12-2		EINECS#:200-679-5	
TSCA	DSL	NDSL	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Listed	Listed	-	-	-	Listed	Listed	Listed	Listed	Listed

USA FEDERAL REGULATION

SARA 311/312 HAZARDOUS CATEGORIZATION

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release Of Pressure Hazard	Reactive Hazard
Yes	Yes	No	No	No

SARA 313

Component	CAS#	Weight %	SARA 313 – Threshold Values %
Dimethylformamide	68-12-2	95.0	1.0

Clean Water Act: Not Applicable

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OSHA: Not Applicable
TSCA 12(b): Not Applicable

Clean Air Act

Component	HAPS Data
Dimethylformamide	Listed

California Proposition 65: This product does not contain any Proposition 65 chemicals.

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Dimethylformamide	100 lb	-

STATE RIGHT TO KNOW

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dimethylformamide	Listed	Listed	Listed	Listed	Listed
X-GAL	-	Listed	Listed	-	-

HMIS Rating

Health Hazard	Flammability	Physical Hazard
2	2	0

NFPA Rating

Health Hazard	Flammability	Reactivity Hazard
2	2	0

US DEPARTMENT OF TRANSPORTATION

REPORTABLE QUANTITY (RQ)	DOT MARINE POLLUTANT	DOT SEVER MARINE POLLUTANT
Yes	No	No

U.S. DEPARTMENT OF HOMELAND SECURITY: This product does not contain any DHS chemicals.

Canada: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

This SDS complies with the requirements of Regulation (EC).

SECTION 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. Research Products International Corp. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. This product is sold for laboratory research and development purposes use only.