

# SAFETY DATA SHEET

## 5X SDS-PAGE Loading Buffer w/DTT

Date of issue: 2018-07-04

Revision date: Not applicable

Version: R0001.0001

### 1. IDENTIFICATION

#### A. Product name

- 5X SDS-PAGE Loading Buffer w/DTT [IBS-BS002]

#### B. Recommended use and restriction on use

- General use : Not available  
 - Restriction on use : Not available

#### C. Manufacturer / Supplier / Distributor information

##### ○ Manufacturer information

- Company name : iNtRON Biotechnology, Inc.  
 - Address : #1011 Jungang Induspia V B/D, 137, Sagimakgol-ro, Jungwon-gu, Seongnam, Gyeonggi-do, 13202, Korea  
 - Dept. : CRT center  
 - Telephone number : +82-31-739-5737  
 - Emergency telephone number :  
 - Fax number : +82-31-739-5264  
 - E-mail address : intronbio@intronbio.com

##### ○ Supplier/Distributor information

- Company name : iNtRON Biotechnology, Inc.  
 - Address : #1011 Jungang Induspia V B/D, 137, Sagimakgol-ro, Jungwon-gu, Seongnam, Gyeonggi-do, 13202, Korea  
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### 2. HAZARD IDENTIFICATION

#### A. GHS Classification

- Acute toxicity (dermal) : Category3

#### B. GHS label elements

##### ○ Hazard symbols



##### ○ Signal words

- Danger

##### ○ Hazard statements

- H311 Toxic in contact with skin

##### ○ Precautionary statements

**1) Prevention**

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

**2) Response**

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P361 Remove/Take off immediately all contaminated clothing.
- P363 Wash contaminated clothing before reuse.

**3) Storage**

- P405 Store locked up.

**4) Disposal**

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

**C. Other hazards which do not result in classification : (NFPA Classification)**○ **NFPA grade (0 ~ 4 level)**

- Health : 2, Flammability : 1, Reactivity : 0

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Glycerol	-	56-81-5	50
Sodium dodecyl sulfate	-	151-21-3	10
2,3-Butanediol, 1,4-dimercapto-, (R*,R*)-	-	3483-12-3	7.71
2-Amino-2-(hydroxymethyl)-1,3-propanediol	-	77-86-1	3.02
4,4'-(3H-2,1-Benzoxathiol-3-ylidene)bis[2,6-dibromophenol]-S,S-dioxide	-	115-39-9	0.5

**4. FIRST AID MEASURES****A. Eye contact**

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

**B. Skin contact**

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Prevent the spread of the skin.
- Take the doctor's examination.

**C. Inhalation contact**

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

**D. Ingestion contact**

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

**E. Delayed and immediate effects and also chronic effects from short and long term exposure**

- Not available

**F. Notes to physician**

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

**5. FIREFIGHTING MEASURES****A. Suitable (Unsuitable) extinguishing media**

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

**B. Specific hazards arising from the chemical**

- Not available

**C. Special protective actions for firefighters**

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Keep containers cool with water spray.
- Fine powder may cause ignition.

**6. ACCIDENTAL RELEASE MEASURES****A. Personal precautions, protective equipment and emergency procedures**

- Do not touch spilled material. Stop leak if you can do it without risk.
- Remove all sources of ignition.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Avoid dust formation.
- Moist with water to prevent dust scattering.

**B. Environmental precautions**

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

**C. Methods and materials for containment and cleaning up**

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Dust spills : Cover dust spills with plastic sheet or waterproof cloth to minimize spreading and avoid contact with water.
- Small liquid state spills: Appropriate container for disposal of spilled material collected.
- For disposal of spilled material in appropriate containers collected and clear surface.

**7. HANDLING AND STORAGE****A. Precautions for safe handling**

- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Refer to Engineering controls and personal protective equipment.
- Operators should wear antistatic footwear and clothing.
- Minimize occurrence of dust and accumulation.'

**B. Conditions for safe storage, including any incompatibilities**

- Do not use damaged containers.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- No open fire.
- Prevent static electricity and keep away from combustible materials or heat sources.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****A. Exposure limits**

- o **ACGIH TLV**
  - [Glycerol] : TWA, 10 mg/m<sup>3</sup>
- o **OSHA PEL**
  - [Glycerol]: 15 mg/m<sup>3</sup> (Total dust), 5 mg/m<sup>3</sup> (Respirable fraction)

## B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

## C. Individual protection measures, such as personal protective equipment

- **Respiratory protection**
  - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
  - Respiratory protection is ranked in order from minimum to maximum.
  - Consider warning properties before use.
  - Dust, mist, fume-purifying respiratory protection
  - Any air-purifying respirator with a corpuscle filter of high efficiency
  - Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
  - Self-contained breathing apparatus with a corpuscle filter of high efficiency
  - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- **Eye protection**
  - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
  - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- **Hand protection**
  - Wear appropriate glove.
- **Skin protection**
  - Wear appropriate clothing.
- **Others**
  - Not available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	No data
- Color	No data
B. Odor	No data
C. Odor threshold	No data
D. pH	No data
E. Melting point/Freezing point	No data
F. Initial Boiling Point/Boiling Ranges	No data
G. Flash point	No data
H. Evaporation rate	No data
I. Flammability(solid, gas)	No data
J. Upper/Lower Flammability or explosive limits	No data
K. Vapour pressure	No data
L. Solubility	No data
M. Vapour density	No data
N. Specific gravity(Relative density)	No data
O. Partition coefficient of n-octanol/water	No data
P. Autoignition temperature	No data
Q. Decomposition temperature	No data
R. Viscosity	No data
S. Molecular weight	No data

[4,4'-(3H-2,1-Benzoxathiol-3-ylidene)bis[2,6-dibromophenol]-S,S-dioxide]

A. Appearance	
- Appearance	Solid
- Color	Brown, pink, orange, purple, yellow, red
B. Odor	Odorless
C. Odor threshold	None
D. pH	Not applicable

E. Melting point/Freezing point	273°C (melting point)
F. Initial Boiling Point/Boiling Ranges	Not applicable
G. Flash point	No data
H. Evaporation rate	No data
I. Flammability(solid, gas)	No data
J. Upper/Lower Flammability or explosive limits	-/- %
K. Vapour pressure	Not applicable
L. Solubility	0.04061 mg/l
M. Vapour density	Not applicable
N. Specific gravity(Relative density)	None
O. Partition coefficient of n-octanol/water	None
P. Autoignition temperature	No data
Q. Decomposition temperature	No data
R. Viscosity	No data
S. Molecular weight	669.96

## [2-Amino-2-(hydroxymethyl)-1,3-propanediol]

A. Appearance	
- Appearance	Solid
- Color	White
B. Odor	A slightly unique incense
C. Odor threshold	Not available
D. pH	10.4
E. Melting point/Freezing point	171 ~ 172 °C
F. Initial Boiling Point/Boiling Ranges	219 °C ~ 220 °C
G. Flash point	170 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	- / -
K. Vapour pressure	0.000002 mmHg (at 25°C)
L. Solubility	550 mg/l
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.328
O. Partition coefficient of n-octanol/water	-1.56
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	121.14

## [Sodium dodecyl sulfate]

A. Appearance	
- Appearance	Solid, crystals, flakes, powder
- Color	White to white system color
B. Odor	Very weak smell
C. Odor threshold	None
D. pH	Not applicable
E. Melting point/Freezing point	204 ~ 207°C
F. Initial Boiling Point/Boiling Ranges	Not applicable
G. Flash point	No data
H. Evaporation rate	No data
I. Flammability(solid, gas)	No data
J. Upper/Lower Flammability or explosive limits	- / -
K. Vapour pressure	0.00000000047 mmHg (at 25C estimated)
L. Solubility	10%
M. Vapour density	Not applicable
N. Specific gravity(Relative density)	>1.1 (water=1)

O. Partition coefficient of n-octanol/water	1.60
P. Autoignition temperature	No data
Q. Decomposition temperature	No data
R. Viscosity	No data
S. Molecular weight	288.38

[Glycerol]

A. Appearance	
- Appearance	Liquid (appearance change: hygroscopic)
- Color	From achromatic to yellow
B. Odor	Odorless
C. Odor threshold	No data
D. pH	Neutrality
E. Melting point/Freezing point	20°C
F. Initial Boiling Point/Boiling Ranges	171°C
G. Flash point	160°C
H. Evaporation rate	No data
I. Flammability(solid, gas)	Liquid
J. Upper/Lower Flammability or explosive limits	19 / 2.7%
K. Vapour pressure	0.0025 mmHg (at 50°C)
L. Solubility	Water solubility: 1000g/L at 25°C
M. Vapour density	3.1
N. Specific gravity(Relative density)	1.2613
O. Partition coefficient of n-octanol/water	None
P. Autoignition temperature	370°C
Q. Decomposition temperature	290°C
R. Viscosity	954 cP (at 25C)
S. Molecular weight	92.09

## 10. STABILITY AND REACTIVITY

### A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

### D. Incompatible materials

- Not available

### E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

## 11. TOXICOLOGICAL INFORMATION

### A. Information on the likely routes of exposure

- (Respiratory tracts)
  - Not available
- (Oral)
  - Not available
- (Eye·Skin)
  - Not available

### B. Delayed and immediate effects and also chronic effects from short and long term exposure

- **Acute toxicity**

- \* **Oral**

- Product (ATEmix) : 300mg/kg < ATEmix <= 2000mg/kg
    - [Glycerol] : LD50 = 12600 mg/kg Rat (ChemIDplus)
    - [Sodium dodecyl sulfate] : LD50 1200 mg/kg Rat (SIDS)
    - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : LD50 = 5900 mg/kg rabbit (Thomson Micromedex)

- \* **Dermal**

- Product (ATEmix) : 300mg/kg < ATEmix <= 2000mg/kg
    - [Glycerol] : LD50 > 10000 mg/kg Rat (ChemIDplus)
    - [Sodium dodecyl sulfate] : LD50 600 mg/kg Rabbit (SIDS)

- \* **Inhalation**

- Product (ATEmix) : Not available
    - [Glycerol] : LC50 >2.75 mg/ℓ 4 hr Rat (ECHA)

- **Skin corrosion/irritation**

- Not available

- **Serious eye damage/irritation**

- Not available

- **Respiratory sensitization**

- Not available

- **Skin sensitization**

- Not available

- **Carcinogenicity**

- \* **IARC**

- Not available

- \* **OSHA**

- Not available

- \* **ACGIH**

- Not available

- \* **NTP**

- Not available

- \* **EU CLP**

- Not available

- **Germ cell mutagenicity**

- Not available

- **Reproductive toxicity**

- Not available

- **STOT-single exposure**

- Not available

- **STOT-repeated exposure**

- Not available

- **Aspiration hazard**

- Not available

## 12. ECOLOGICAL INFORMATION

### A. Ecotoxicity

- **Fish**

- [Glycerol] : LC50 >11 mg/ℓ 96 hr Cyprinodon variegatus (ECHA)
  - [Sodium dodecyl sulfate] : LC50 1.31 mg/ℓ 96 hr Cyprinus carpio (ECOTOX)
  - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : LC50 = 955.892 mg/ℓ 96 hr (Estimate)
  - [4,4'-(3H-2,1-Benzoxathiol-3-ylidene)bis[2,6-dibromophenol]-S,S-dioxide] : LC50 0.285 mg/ℓ 96 hr (Estimate)

- **Crustaceans**

- [Glycerol] : LC50 1955 mg/ℓ 48 hr Daphnia magna (ECHA)
  - [Sodium dodecyl sulfate] : EC50 6 mg/ℓ 48 hr Daphnia magna (ECOTOX)
  - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : EC50 = 19.793 mg/ℓ 48 hr (Estimate)
  - [4,4'-(3H-2,1-Benzoxathiol-3-ylidene)bis[2,6-dibromophenol]-S,S-dioxide] : LC50 0.024 mg/ℓ 48 hr (Estimate)

- **Algae**

- [Sodium dodecyl sulfate] : EC50 1.2 mg/ℓ 96 hr Skeletonema costatum (ECOTOX)

- [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : EC50 = 163.053 mg/ℓ 96 hr (Estimate)
- [4,4'-(3H-2,1-Benzoxathiol-3-ylidene)bis[2,6-dibromophenol]-S,S-dioxide] : EC50 0.027 mg/ℓ 96 hr (Estimate)

## B. Persistence and degradability

- **Persistence**
  - [Glycerol] : Log Kow -1.76 (HSDB)
  - [Sodium dodecyl sulfate] : log Kow 1.60
  - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : log Kow = -1.56 (HSDB)
- **Degradability**
  - Not available

## C. Bioaccumulative potential

- **Bioaccumulative potential**
  - [Sodium dodecyl sulfate] : BCF 2.1 ~ 7.1 (OECD SIDS)
  - [2-Amino-2-(hydroxymethyl)-1,3-propanediol] : BCF = 3 (HSDB)
- **Biodegradation**
  - [Glycerol] : Biodegradability = 65 (%) 14 day (OECD 1G 301C, OECD SIDS, OECD 1G 301D, IUCLIDE), 94 % 24hr (TOC removal)(FCHA)
  - [Sodium dodecyl sulfate] : 100 (%) 28 day (AFNOR T 90.302 (1997), IUCLID)

## D. Mobility in soil

- Not available

## E. Other adverse effects

- Not available

# 13. DISPOSAL CONSIDERATIONS

## A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seprately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

## B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

# 14. TRANSPORT INFORMATION

## A. UN No. (IMDG CODE/IATA DGR)

- Not applicable

## B. Proper shipping name

- Not applicable

## C. Hazard Class

- Not applicable

## D. IMDG CODE/IATA DGR Packing group

- Not applicable

## E. Marine pollutant

- Not applicable

## F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not available



- EmS SPILLAGE SCHEDULE : Not available
- Air transport(IATA): Not subject to IATA regulations.

## 15. REGULATORY INFORMATION

### A. National and/or international regulatory information

- **POPs Management Law**
  - Not applicable
- **Information of EU Classification**
  - \* **Classification**
    - Not applicable
- **U.S. Federal regulations**
  - \* **OSHA PROCESS SAFETY (29CFR1910.119)**
    - Not applicable
  - \* **CERCLA Section 103 (40CFR302.4)**
    - Not applicable
  - \* **EPCRA Section 302 (40CFR355.30)**
    - Not applicable
  - \* **EPCRA Section 304 (40CFR355.40)**
    - Not applicable
  - \* **EPCRA Section 313 (40CFR372.65)**
    - Not applicable
- **Rotterdam Convention listed ingredients**
  - Not applicable
- **Stockholm Convention listed ingredients**
  - Not applicable
- **Montreal Protocol listed ingredients**
  - Not applicable

## 16. OTHER INFORMATION

### A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

### B. Issue date

- 2018-07-04

### C. Revision number and Last date revised

- Not applicable

### D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).