

# SAFETY DATA SHEET

## Patho Gene-spin DNA/RNA Extraction Kit - Lysis Buffer

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### 1. IDENTIFICATION

#### A. Product name

- Patho Gene-spin DNA/RNA Extraction Kit - Lysis Buffer

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

- General use : Laboratory chemicals  
 - 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

- Serious eye damage/irritation : Category2A

#### B. GHS label elements

##### ○ Hazard symbols



##### ○ Signal words

- Warning

##### ○ Hazard statements

- H319 Causes serious eye irritation

##### ○ Precautionary statements

**1) Prevention**

- P264 Wash hands thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

**2) Response**

- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313 If eye irritation persists: Get medical advice/attention.

**3) Storage**

- Not applicable

**4) Disposal**

- Not applicable

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

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

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Guanidine isothiocyanate	-	593-84-0	< 50
1,2,3-Propanetricarboxylic acid, 2-hydroxy-, trisodium salt, dihydrate	-	6132-04-3	< 10
Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.	-	9005-64-5	< 10

**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.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Remove contact lenses if worn.

**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.

**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

- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Avoid inhalation of materials or combustion by-products.
- Do not access if the tank on fire.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Fine powder may cause ignition.

## 6. ACCIDENTAL RELEASE MEASURES

### A. Personal precautions, protective equipment and emergency procedures

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
- 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.
- Avoid skin contact and inhalation.

### 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

- Avoid direct physical contact.
- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Minimize occurrence of dust and accumulation.'

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

- Save applicable laws and regulations.
- Do not apply any physical shock to container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- Prevent static electricity and keep away from combustible materials or heat sources.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### A. Exposure limits

- o **ACGIH TLV**
  - Not available
- o **OSHA PEL**
  - Not available

## 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

### o 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.

### o 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.

### o Hand protection

- Wear appropriate glove.

### o Skin protection

- Wear appropriate clothing.

### o Others

- Not available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Not available
- Color	Not available
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	Not available
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	Not available

[Guanidine isothiocyanate]

A. Appearance	
- Appearance	Solid powder
- Color	White
B. Odor	No data
C. Odor threshold	No data

D. pH	From 4.8 - 6.0 to 1,420 g/l at 20°C
E. Melting point/Freezing point	117°C
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	-/-
K. Vapour pressure	No data
L. Solubility	1,420 g/l at °C
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

[1,2,3-Propanetricarboxylic acid, 2-hydroxy-, trisodium salt, dihydrate]

A. Appearance	
- Appearance	White Solid In Various Forms
- Color	White
B. Odor	No data
C. Odor threshold	No data
D. pH	No data
E. Melting point/Freezing point	150°C
F. Initial Boiling Point/Boiling Ranges	4927°C
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	No data
L. Solubility	77 g/100ml
M. Vapour density	No data
N. Specific gravity(Relative density)	1.665 (g/cm <sup>3</sup> )
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	294.1

[Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.]

A. Appearance	
- Appearance	Liquid
- Color	Yellow to tan
B. Odor	Very weak smell
C. Odor threshold	No data
D. pH	No data
E. Melting point/Freezing point	-10°C
F. Initial Boiling Point/Boiling Ranges	100°C
G. Flash point	> 149°C
H. Evaporation rate	None
I. Flammability(solid, gas)	No data
J. Upper/Lower Flammability or explosive limits	-/-
K. Vapour pressure	1.0 mmHg (at 20C)
L. Solubility	15.84 mg/l (at 25C estimated)
M. Vapour density	>1

N. Specific gravity(Relative density)	1.084 (g/cm <sup>3</sup> at 45C)
O. Partition coefficient of n-octanol/water	-2.03 (estimated)
P. Autoignition temperature	No data
Q. Decomposition temperature	No data
R. Viscosity	400cP
S. Molecular weight	1007.27 (estimated)

## 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)
  - Causes serious eye irritation

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

- Acute toxicity
  - \* Oral
    - Product (ATEmix) : >5000mg/kg
    - [Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.] : LD50 = 36700 mg/kg Rat
  - \* Dermal
    - Not available
  - \* Inhalation
    - Not available
- Skin corrosion/irritation
  - Not available
- Serious eye damage/irritation
  - Causes serious eye irritation
- 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**
  - Not available
- **Crustaceans**
  - Not available
- **Algae**
  - Not available

### B. Persistence and degradability

- **Persistence**
  - [Guanidine isothiocyanate] : log Kow -4.04 (Estimate)
  - [Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.] : log Kow -2.03 (Estimate)
- **Degradability**
  - Not available

### C. Bioaccumulative potential

- **Bioaccumulative potential**
  - [Guanidine isothiocyanate] : BCF 3.162 (Estimate)
  - [Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.] : BCF 3.16 (Estimate)
- **Biodegradation**
  - [Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.] : (non-biodegradable, not degraded and has a high potential to accumulate in vivo) (EPI Suite)

### D. Mobility in soil

- [Guanidine isothiocyanate] : Koc -0.961
- [Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.] : Koc = 239700000 (Can be adsorbed in the soil, Estimates)

### 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 sepatatly, 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)**

- 2811

**B. Proper shipping name**

- TOXIC SOLIDS, ORGANIC, N.O.S.

**C. Hazard Class**

- 6.1

**D. IMDG CODE/IATA DGR Packing group**

- I

**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 : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-A (Toxic substances)

**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**

- 2018-05-30



**C. Revision number and Last date revised**

- Not applicable

**D. Other**

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