



SAFETY DATA SHEET

DNA-spin Plasmid DNA Purification Kit - Washing Buffer A

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1. IDENTIFICATION

A. Product name

- DNA-spin Plasmid DNA Purification Kit - Washing Buffer A

B. Recommended use and restriction on use

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

C. Manufacturer / Supplier / Distributor information

o 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

o Supplier/Distributor information

- Company name : iNtRON Biotechnology, Inc.
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2. HAZARD IDENTIFICATION

A. GHS Classification

- Flammable liquids : Category2
 - Acute toxicity (oral) : Category4
 - Skin corrosion/irritation : Category2
 - Serious eye damage/irritation : Category2A
 - Reproductive toxicity : Category2
 - Specific target organ toxicity(Single exposure) : Category1
 - Specific target organ toxicity(Single exposure) : Category3(Narcotic effects)
 - Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation)
 - Specific target organ toxicity(Repeated exposure) : Category2
 - Aspiration hazard : Category2
 - Acute aquatic toxicity : Category2

B. GHS label elements

o Hazard symbols



○ **Signal words**

- Danger

○ **Hazard statements**

- H225 Highly flammable liquid and vapour
- H302 Harmful if swallowed
- H305 May be harmful if swallowed and enters airways
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation.
- H336 May cause drowsiness and dizziness.
- H361 Suspected of damaging fertility or the unborn child
- H370 Causes damage to organs(Refer Section SDS 11)
- H373 May cause damage to organs through prolonged or repeated exposure (Refer Section SDS 11)
- H401 Toxic to aquatic organisms.

○ **Precautionary statements**

1) Prevention

- 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. Flammable liquids (chapter 2.6) 1, 2, 3
- P243 Take precautionary measures against static discharge.
- P260 Do not breathe dust/fume.
- P261 Avoid breathing dust/fume.
- P264 Wash hands 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.

2) Response

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- 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.
- P307+P311 If exposed: Call a POISON CENTER or doctor/physician.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P321 Specific treatment
- P330 Rinse mouth.
- P331 Do NOT induce vomiting.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362 Take off contaminated clothing and wash before reuse.
- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).

3) Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.

- 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)

o 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, monohydrochloride	Guanidine, hydrochloride (1:1) ; Guanidinium chloride ; Guanidine chloride ; Guanidinium hydrochloride ;	50-01-1	25 ~ 50%
2-Propanol	Isopropanol ; Dimethylcarbinol ; Isopropyl alcohol ; n-Propan-2-ol ; Propan-2-ol ; i-Propyl alcohol ; 2-Propanol	67-63-0	25 ~ 50%

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.
- Get medical attention immediately.
- 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.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Wash thoroughly after handling.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- Get medical attention immediately.
- If swallowed, large amounts of water to drink and do not induce vomiting.

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.
- If exposed or concerned, get medical attention/advice.

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

- Move containers from fire area, if you can do without the risk.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Keep containers cool with water spray.
- Fine powder may cause ignition.
- Due to the extremely low flash point, irrigating fire extinguishing may be less effective when put out a fire.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Ventilate closed spaces before entering.
- Move container to safe area from the leak area.
- Remove all sources of ignition.
- Avoid dust formation.
- Moist with water to prevent dust scattering.
- Avoid skin contact and inhalation.
- Keep unauthorized people away, isolate hazard area and deny entry.

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.
- Do not use plastic containers.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid direct physical contact.
- Comply with all applicable laws and regulations for handling
- Do not handle until all safety precautions have been read and understood.
- Operators should wear antistatic footwear and clothing.
- Minimize occurrence of dust and accumulation.
- Avoid contact with heat, sparks, flame or other ignition sources.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Do not use damaged containers.
- Save applicable laws and regulations.
- Do not apply any physical shock to container.
- Keep sealed when not in use.

- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- **ACGIH TLV**
 - [2-Propanol] : TWA, 200 ppm (491 mg/m³), STEL, 400 ppm (984 mg/m³)
- **OSHA PEL**
 - [2-Propanol]:400ppm 980mg/m³

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 chemical resistant glove.
- **Skin protection**
 - Wear appropriate chemical resistant protective clothing.
- **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, monohydrochloride]

A. Appearance	
- Appearance	Not available
- Color	Not available
B. Odor	Odorless
C. Odor threshold	Not available
D. pH	6.2 (10% Solution)
E. Melting point/Freezing point	178 ~ 185°C
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	0.00000176 mmHg (25°C estimated)
L. Solubility	215 g/100ml (20°C)
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.3
O. Partition coefficient of n-octanol/water	-1.7
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	95.5

[2-Propanol]

A. Appearance	
- Appearance	Liquid
- Color	Colorless
B. Odor	Very weak smell, alcohol smell
C. Odor threshold	22 ppm
D. pH	Not available
E. Melting point/Freezing point	-90°C
F. Initial Boiling Point/Boiling Ranges	83°C
G. Flash point	11.7°C
H. Evaporation rate	1.7 (Butyl acetate = 1)
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	12 / 2 %
K. Vapour pressure	4.4 kPa (20°C)
L. Solubility	100 g/100ml
M. Vapour density	2.1
N. Specific gravity(Relative density)	0.79 (water=1)
O. Partition coefficient of n-octanol/water	0.05
P. Autoignition temperature	456°C
Q. Decomposition temperature	Not available
R. Viscosity	2.1 cP (25°C)
S. Molecular weight	60.1

10. STABILITY AND REACTIVITY**A. Chemical Stability**

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

B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

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)**
 - May be harmful if swallowed and enters airways
 - May cause respiratory irritation.
- **(Oral)**
 - Harmful if swallowed
- **(Eye-Skin)**
 - Causes serious eye irritation
 - Causes skin irritation

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
 - [Guanidine, monohydrochloride] : LD50 475 mg/kg Rat
 - [2-Propanol] : LD50 = 4710mg/kg Rat (HSDB) LD50 5840 mg/kg Rat (OECD TG 401, ECHA)
 - * **Dermal**
 - Product (ATEmix) : >5000mg/kg
 - [Guanidine, monohydrochloride] : LD50 > 2000 mg/kg Rabbit
 - [2-Propanol] : LD50 = 12870 mg/kg rabbit (HSDB), LD50 16400 mg/kg Rabbit (OECD TG402, ECHA)
 - * **Inhalation**
 - Product (ATEmix) : Not available
 - [Guanidine, monohydrochloride] : LC50 5.319 mg/ℓ 4 hr Rat
 - [2-Propanol] : LC50 = 72.6 mg/ℓ 4 hr Rat (HSDB), LC50 >10000 ppm 6 hr Rat (OECE TG 403, GLP)
- **Skin corrosion/irritation**
 - Causes skin irritation
- **Serious eye damage/irritation**
 - Causes serious eye irritation
- **Respiratory sensitization**
 - Not available
- **Skin sensitization**
 - Not available
- **Carcinogenicity**
 - * **IARC**
 - [2-Propanol] : Group 3
 - * **OSHA**
 - Not available
 - * **ACGIH**
 - [2-Propanol] : A4
 - * **NTP**
 - Not available
 - * **EU CLP**
 - Not available
- **Germ cell mutagenicity**

- Not available
- **Reproductive toxicity**
 - Suspected of damaging fertility or the unborn child
- **STOT-single exposure**
 - Causes damage to organs
 - May cause drowsiness and dizziness.
 - May cause respiratory irritation.
- **STOT-repeated exposure**
 - May cause damage to organs through prolonged or repeated exposure
- **Aspiration hazard**
 - May be harmful if swallowed and enters airways

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- **Fish**
 - [Guanidine, monohydrochloride] : LC50 1758 mg/ℓ 48 hr
 - [2-Propanol] : LC50 >100 mg/ℓ 96 hr Oryzias latipes (NITE: MOE eco-toxicity tests of chemicals, 1997)
- **Crustaceans**
 - [2-Propanol] : ECHA LC50 5102 mg/ℓ 24 hr Daphnia magna(OECD TG 202)
- **Algae**
 - [2-Propanol] : EC50 = 2.2 mg/ℓ 96 hr

B. Persistence and degradability

- **Persistence**
 - Not available
- **Degradability**
 - Not available

C. Bioaccumulative potential

- **Bioaccumulative potential**
 - Not available
- **Biodegradation**
 - Not available

D. Mobility in soil

- [2-Propanol] : log K_{oc} = 0.03

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, 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 dispose 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)

- 1219

B. Proper shipping name

- ISOPROPANOL OR ISOPROPYL ALCOHOL

C. Hazard Class

- 3

D. IMDG CODE/IATA DGR Packing group

- II

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-E (Non-water-reactive flammable liquids)
- EmS SPILLAGE SCHEDULE : S-D (Flammable liquids)

15. REGULATORY INFORMATION**A. National and/or international regulatory information**

- **POPs Management Law**
 - Not applicable
- **Information of EU Classification**
 - * **Classification**
 - [Guanidine, monohydrochloride] : H302, H319, H315
 - [2-Propanol] : H225, H319, H336
- **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)**
 - [2-Propanol] : 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

- 2018-05-23

C. Revision number and Last date revised

- Not applicable

D. Other

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