

RNA Elution Buffer

1. Identification of the substance/preparation and of the company/undertaking

Product name : RNA Elution Buffer

Manufacturer : 3430 Schmon Parkway
Thorold, Ontario
Canada L2V 4Y6
Tel. (905)-227-8848
Fax. (905)-227-1061

Chemical product name : Not applicable.

Supplier : 3430 Schmon Parkway
Thorold, Ontario
Canada L2V 4Y6
Tel. (905)-227-8848
Fax. (905)-227-1061

Synonyms : Not available.

Chemical Formula : Not applicable.

Emergency telephone number : Canada:
CANUTEC-1-613-996-6666
US:
CHEMTREC-1-800-424-9300

Material Uses : Elution buffer.

Catalog#
various

2. Composition/information on ingredients

Substance/Preparation : Preparation.

Chemical name	CAS No.	%	EC Number	Classification
United States				
Germany				
United Kingdom (UK)				
Japan				
Canada				

This material is classified as non-hazardous under the United States OSHA regulation, the European DSD/DPD Directives and several countries specific requirements, in Japan and under the Canadian WHMIS regulation.

3. Hazards identification

Physical State and Appearance : Liquid. (Clear.)

Emergency Overview : No specific hazard.
USE WITH CARE.
Follow good industrial hygiene practice.

Routes of Entry : Dermal contact. Eye contact. Inhalation. Ingestion.
The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Effects and symptoms

Skin Contact : Slightly hazardous in case of skin contact (irritant). Non-sensitizer for skin.

Eye Contact : Slightly hazardous in case of eye contact (irritant).

Aggravating conditions : Repeated or prolonged exposure is not known to aggravate medical condition.

4. First aid measures

First-Aid measures

- Inhalation** : If inhaled, remove to fresh air. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.
- Skin Contact** : Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
- Eye Contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.
- Notes to physician** : No specific antidote. Medical staff must contact Poison Information Center.
- Protection of first-aiders** : Not available.

5. Fire-fighting measures

Extinguishing Media

- Suitable** : Use extinguishing media suitable for surrounding materials.
- Unsuitable.** : Not applicable.
- Unusual fire/explosion hazards** : Not applicable.
- Hazardous thermal decomposition products** : Not applicable.
- Special fire-fighting procedures** : Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
- Protection of fire-fighters** : Not applicable.

6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist before handling this product.
- Environmental Precautions and Clean-up Methods** : Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Note: See section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

- Handling** : Avoid contact with eyes. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Keep away from incompatibles such as oxidizing agents.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Preferred storage temperature is 4°C. For long-term storage keep at -20°C.
- Germany - Storage Code** : Not available.

8. Exposure controls/personal protection

- Engineering measures** : Good general ventilation should be sufficient to control airborne levels.
- Hygiene measures** : Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
United States	
1) None assigned.	
Germany	
1) None assigned.	
United Kingdom (UK)	
1) None assigned.	
Japan	
1) None assigned.	
Canada	
1) None assigned.	

- Recommended monitoring procedures** : Not available.

Personal protective equipment

- Skin and body** : Lab coat.
- Eyes** : Safety glasses.

9. Physical and chemical properties

Physical state	: Liquid. (Clear.)
Color	: Colorless.
Odor	: Odorless.
pH	: 8.5 [Basic.]
Boiling Point	: The lowest known value is 99.9°C (211.8°F) (Water).
Melting Point	: May start to solidify at -0.1°C (31.8°F) based on data for: Water.
Flash point	: Not applicable.
Explosive properties	: Risks of explosion of the product in presence of mechanical impact: Not applicable. Risks of explosion of the product in presence of static discharge: Not applicable.
Vapor Pressure	: The highest known value is 2.3 kPa (17.5 mm Hg) (at 20°C) (Water).
Density	: The only known value is 1 (Water = 1) (Water).
Solubility	: Miscible in water.
Vapor Density	: The highest known value is 0.62 (Air = 1) (Water).

10. Stability and reactivity

Stability	: The product is stable at room temperature.
Conditions to avoid	: The product is unstable at a temperature above 37°C. See Section 7 for storage conditions.
Materials to avoid	: Reactive with oxidizing agents.
Hazardous Decomposition Products	: Not applicable.

11. Toxicological information

Acute toxicity

<u>Ingredient Name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
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Skin irritation : Slightly hazardous in case of skin contact (irritant).

Eye irritation : Slightly hazardous in case of eye contact (irritant).

Sensitization : Non-sensitizer for skin.

Chronic toxicity

: Repeated or prolonged exposure is not known to aggravate medical condition.

Carcinogenic Effects : Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.

Mutagenic Effects : Not available.

Reproduction toxicity : Not available.

Developmental and Teratogenic Effects : Not available.

To the best of our knowledge, the toxicological properties of this substance have not been investigated thoroughly.

12. Ecological information

Ecotoxicity Data

<u>Ingredient Name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
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Mobility : Not available.

Persistence/degradability : Not available.

Bioaccumulative potential : Not available.

Soil/Water Partition Coefficient (K_{ow}) : Not available.

13. Disposal considerations

Methods of disposal : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Waste Classification : Not applicable.

European Waste Catalogue (EWC) : Not available.

Hazardous Waste : To present knowledge of the supplier, this product is not regarded as hazardous waste as defined by EU Directive 91/689/EC.

14. Transport information

International transport regulations

Regulatory Information	Classification
DOT (United States)	Not regulated.
ADR/RID (Europe)	Not regulated.
ADN (Europe)	Not regulated.
Road Law (Japan)	Not regulated.
TDG (Canada)	Not regulated.
IATA-DGR	Not regulated.
IMDG	Not regulated.

15. Regulatory information

HCS (United States) : Not controlled under the HCS (United States).
U.S. Federal Regulations : TSCA 8(b) inventory: All components listed.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

Form R - Reporting Requirements : No products were found.

Supplier Notification : No products were found.

State Regulations :
California prop. 65: No products were found.

EU Regulations

Product Use : Classification and labeling have been performed according to EU directives 67/548/EEC, 1999/45/EC including amendments and the intended use.
- Industrial applications.

National regulations

Germany

Ordinance on Combustible Liquids : Class: Omitted

Hazard class for water (GWK) : 1

United Kingdom (UK)

VOC Content (Retail Use) : Not applicable.

VOC Content (Industrial Use) : Contains 0 wt% VOC.

Japan Control Laws : Not applicable.

WHMIS (Canada) : Not controlled under WHMIS (Canada).
DSL/NDL: All components listed.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. Other information

US Label Requirements : USE WITH CARE.

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

Health	0
Fire Hazard	0
Reactivity	0
Personal Protection	C

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



Europe Label :
Japan Label : Not applicable.
WHMIS Label :

HISTORY

Date of printing : 2004-11-12.
Date of issue : 2004-11-12.
Date of Previous Issue : No Previous Validation.
Version : 1
Prepared by : Kemika XXI inc.

Notice to Reader
To the best of our knowledge, the information contained 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.

Material Safety Data Sheet

Binding Solution



NORGEN
BIOTEK CORPORATION

1. Product and company identification

Common name : Binding Solution
Material uses : Binding Solution
MSDS authored by: : Kemika XXI Inc. + 1-450- 03/28/2006
 435-7475

Supplier/Manufacturer

Norgen Biotek Corp.
 3430 Schmon Parkway
 Thorold, Ontario
 Canada L2V 4Y6
 Tel. (905)-227-8848
 Fax. (905)-227-1061

In case of emergency

CANUTEC (613) 996-6666
 CHEMTREC, U.S. : (800) 424-9300
 International: (703) 527-3887

2. Hazards identification

Physical state : Liquid.
Hazard status : This material is classified hazardous under the WHMIS Controlled Product Regulation in Canada.
Emergency overview : No specific hazard.
 Not applicable.
 Not applicable.
Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects
Eyes : No known significant effects or critical hazards.
Skin : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.
Potential chronic health effects : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
 Mutagenic effects: Not available.
 Teratogenic effects: Not available.

See toxicological information (section 11)

3. Composition/information on ingredients

Canada

Name	CAS number	%
No hazardous ingredient		

4. First aid measures

Eye contact : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
Skin contact : Wash with soap and water. Get medical attention if symptoms occur.
Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
Ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

Notes to physician : No specific antidote. Medical staff must contact Poison Control Center.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

5 . Fire-fighting measures

Flammability of the product : Non-flammable.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : No specific hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

7 . Handling and storage

Handling : Wash thoroughly after handling.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control airborne levels. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protection

Eyes : Safety glasses.

Skin : Lab coat.

Respiratory : A respirator is not needed under normal and intended conditions of product use.

Hands : Rubber gloves.



Personal protection in case of a large spill : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear. Wash hands, forearms and face thoroughly after handling compounds and before eating, smoking and using the lavatory and at the end of the day. Follow good industrial hygiene practice.

9 . Physical and chemical properties

Physical state	: Liquid.
pH	: Neutral.
Boiling/condensation point	: The lowest known value is 100°C (212°F) (Water).
Melting/freezing point	: May start to solidify at 0°C (32°F) based on data for: Water.
Relative density	: The only known value is 1 (Water = 1) (Water).
Vapor pressure	: The highest known value is 2.3 kPa (17.5 mm Hg) (at 20°C) (Water).
Vapor density	: The highest known value is 0.62 (Air = 1) (Water).
Evaporation rate	: 0.36 (Water) compared with Butyl acetate.
Solubility	: Easily soluble in cold water, hot water, methanol, acetone.

10 . Stability and reactivity

Stability and reactivity	: The product is stable.
Incompatibility with various substances	: Reactive with oxidizing materials.
Hazardous polymerization	: Will not occur.

11 . Toxicological information

Acute Effects

Eyes	: No known significant effects or critical hazards.
Skin	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.
Potential chronic health effects	: Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH. Mutagenic effects: Not available. Teratogenic effects: Not available.

12 . Ecological information

Environmental precautions	: No known significant effects or critical hazards.
Products of degradation	: These products are carbon oxides and water, nitrogen oxides, sulfur oxides.
Toxicity of the products of biodegradation	: The products of degradation are less toxic than the product itself.

13 . Disposal considerations

Waste disposal	: The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.
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14 . Transport information

NAERG : Not applicable.

Regulatory information

UN/ IMDG/IATA TDG : Not regulated by any transport mode.

15 . Regulatory information

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).
DSL : All components listed.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

International lists : This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

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

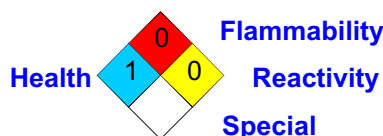
HMIS RATING

Health	1
Fire hazard	0
Physical Hazard	0
Personal protection	C

HAZARD RATINGS

4- Extreme
3- Serious
2- Moderate
1- Slight
0- Minimal

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



References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

Date of issue : 03/28/2006
Version : 1

Notice to reader

To the best of our knowledge, the information contained 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.

Wash Solution

1. Identification of the substance/preparation and of the company/undertaking

Product name : Wash Solution **Manufacturer** : Norgen Biotek Corp.
 3430 Schmon Parkway
 Thorold, Ontario
 Canada L2V 4Y6
 Tel. (905)-227-8848
 Fax. (905)-227-1061

Chemical product name : Not applicable. **Supplier** : Norgen Biotek Corp.
 3430 Schmon Parkway
 Thorold, Ontario
 Canada L2V 4Y6
 Tel. (905)-227-8848
 Fax. (905)-227-1061

Synonyms : Not available. **Emergency telephone number** : Canada:
Chemical Formula : Not applicable. US:
 CHEMTREC-1-800-424-9300

Material Uses : Wash solution.
Catalog#
 various

2. Composition/information on ingredients

Substance/Preparation : Preparation.

Chemical name	CAS No.	%	EC Number	Classification
United States				
Germany				
United Kingdom (UK)				
Japan				
Canada				

This material is classified as non-hazardous under the United States OSHA regulation, the European DSD/DPD Directives and several countries specific requirements, in Japan and under the Canadian WHMIS regulation.

3. Hazards identification

Physical State and Appearance : Liquid. (Clear.)

Emergency Overview : No specific hazard.
 USE WITH CARE.
 Follow good industrial hygiene practice.

Routes of Entry : Dermal contact. Eye contact. Inhalation. Ingestion.
 The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Effects and symptoms

Skin Contact : Slightly hazardous in case of skin contact (irritant). Non-sensitizer for skin.

Eye Contact : Slightly hazardous in case of eye contact (irritant).

Aggravating conditions : Repeated or prolonged exposure is not known to aggravate medical condition.

4. First aid measures

First-Aid measures

- Inhalation** : If inhaled, remove to fresh air. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.
- Skin Contact** : Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
- Eye Contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.
- Notes to physician** : No specific antidote. Medical staff must contact Poison Information Center.
- Protection of first-aiders** : Not available.

5. Fire-fighting measures

Extinguishing Media

- Suitable** : Use extinguishing media suitable for surrounding materials.
- Unsuitable.** : Not applicable.
- Unusual fire/explosion hazards** : Not applicable.
- Hazardous thermal decomposition products** : Not applicable.
- Special fire-fighting procedures** : Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
- Protection of fire-fighters** : Not applicable.

6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist before handling this product.
- Environmental Precautions and Clean-up Methods** : Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Note: See section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

- Handling** : Avoid contact with eyes. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Keep away from incompatibles such as oxidizing agents.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Preferred storage temperature is 4°C. For long-term storage keep at -20°C.
- Germany - Storage Code** : Not available.

8. Exposure controls/personal protection

- Engineering measures** : Good general ventilation should be sufficient to control airborne levels.
- Hygiene measures** : Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
United States	
1) None assigned.	
Germany	
1) None assigned.	
United Kingdom (UK)	
1) None assigned.	
Japan	
1) None assigned.	
Canada	
1) None assigned.	

- Recommended monitoring procedures** : Not available.

Personal protective equipment

- Skin and body** : Lab coat.
- Eyes** : Safety glasses.

9. Physical and chemical properties

Physical state	: Liquid. (Clear.)
Color	: Colorless.
Odor	: Odorless.
pH	: 8.5 [Basic.]
Boiling Point	: The lowest known value is 99.9°C (211.8°F) (Water).
Melting Point	: May start to solidify at -0.1°C (31.8°F) based on data for: Water.
Flash point	: Not applicable.
Explosive properties	: Risks of explosion of the product in presence of mechanical impact: Not applicable. Risks of explosion of the product in presence of static discharge: Not applicable.
Vapor Pressure	: The highest known value is 2.3 kPa (17.5 mm Hg) (at 20°C) (Water).
Density	: The only known value is 1 (Water = 1) (Water).
Solubility	: Miscible in water.
Vapor Density	: The highest known value is 0.62 (Air = 1) (Water).

10. Stability and reactivity

Stability	: The product is stable at room temperature.
Conditions to avoid	: The product is unstable at a temperature above 37°C. See Section 7 for storage conditions.
Materials to avoid	: Reactive with oxidizing agents.
Hazardous Decomposition Products	: Not applicable.

11. Toxicological information

Acute toxicity

<u>Ingredient Name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
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Skin irritation	: Slightly hazardous in case of skin contact (irritant).
Eye irritation	: Slightly hazardous in case of eye contact (irritant).
Sensitization	: Non-sensitizer for skin.
Chronic toxicity	: Repeated or prolonged exposure is not known to aggravate medical condition.
Carcinogenic Effects	: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic Effects	: Not available.
Reproduction toxicity	: Not available.
Developmental and Teratogenic Effects	: Not available.

To the best of our knowledge, the toxicological properties of this substance have not been investigated thoroughly.

12. Ecological information

Ecotoxicity Data

<u>Ingredient Name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
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Mobility	: Not available.
Persistence/degradability	: Not available.
Bioaccumulative potential	: Not available.
Soil/Water Partition Coefficient (K _{ow})	: Not available.

13. Disposal considerations

Methods of disposal	: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste Classification	: Not applicable.
European Waste Catalogue (EWC)	: Not available.
Hazardous Waste	: To present knowledge of the supplier, this product is not regarded as hazardous waste as defined by EU Directive 91/689/EC.

14. Transport information

International transport regulations

Regulatory Information	Classification
DOT (United States)	Not regulated.
ADR/RID (Europe)	Not regulated.
ADN (Europe)	Not regulated.
Road Law (Japan)	Not regulated.
TDG (Canada)	Not regulated.
IATA-DGR	Not regulated.
IMDG	Not regulated.

15. Regulatory information

HCS (United States) : Not controlled under the HCS (United States).
U.S. Federal Regulations : TSCA 8(b) inventory: All components listed.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

Form R - Reporting Requirements : No products were found.

Supplier Notification : No products were found.

State Regulations :
California prop. 65: No products were found.

EU Regulations

Product Use : Classification and labeling have been performed according to EU directives 67/548/EEC, 1999/45/EC including amendments and the intended use.
- Industrial applications.

National regulations

Germany

Ordinance on Combustible Liquids : Class: Omitted

Hazard class for water (GWK) : 1

United Kingdom (UK)

VOC Content (Retail Use) : Not applicable.

VOC Content (Industrial Use) : Contains 0 wt% VOC.

Japan Control Laws : Not applicable.

WHMIS (Canada) : Not controlled under WHMIS (Canada).
DSL/NDL: All components listed.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. Other information

US Label Requirements : USE WITH CARE.

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

Health	0
Fire Hazard	0
Reactivity	0
Personal Protection	C

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



Europe Label :
Japan Label : Not applicable.
WHMIS Label :

HISTORY

Date of printing : 2004-11-12.
Date of issue : 2004-11-12.
Date of Previous Issue : No Previous Validation.
Version : 1
Prepared by : Kemika XXI inc.

Notice to Reader

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Version 1

Page: 5/5

Material Safety Data Sheet

RBC Lysis Solution



NORGEN
BIOTEK CORPORATION

1. Product and company identification

Common name : RBC Lysis Solution
Material uses : RBC Lysis Solution
MSDS authored by: : Kemika XXI Inc. + 1-450- 03/28/2006
 435-7475

Supplier/Manufacturer

Norgen Biotek Corp.
 3430 Schmon Parkway
 Thorold, Ontario
 Canada L2V 4Y6
 Tel. (905)-227-8848
 Fax. (905)-227-1061

In case of emergency

CANUTEC (613) 996-6666
 CHEMTREC, U.S. : (800) 424-9300
 International: (703) 527-3887

2. Hazards identification

Physical state : Liquid.
Hazard status : This material is classified hazardous under the WHMIS Controlled Product Regulation in Canada.

Emergency overview : WARNING !
 CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
 CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
 RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.
 MAY BE HARMFUL IF SWALLOWED.
 Do not ingest. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Irritating to eyes.
Skin : Irritating to skin.
Inhalation : Irritating to respiratory system.
Ingestion : May be harmful if swallowed.

Potential chronic health effects : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
 Mutagenic effects: Not available.
 Teratogenic effects: Not available.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

3. Composition/information on ingredients

Canada

Name	CAS number	%
Ammonium chloride	12125-02-9	1 - 5
Potassium carbonate	584-08-7	1 - 5

4 . First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Notes to physician** : No specific antidote. Medical staff must contact Poison Control Center.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

5 . Fire-fighting measures

- Flammability of the product** : Non-flammable.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : No specific hazard.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

7 . Handling and storage

- Handling** : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

Canada

Product name

Ammonium chloride

Exposure limits**ACGIH TLV (United States, 1/2004).**STEL: 20 mg/m³ 15 minute(s). Form: FumeTWA: 10 mg/m³ 8 hour(s). Form: Fume

Consult local authorities for acceptable exposure limits.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

- Eyes** : Safety glasses.
- Skin** : Lab coat.
- Respiratory** : A respirator is not needed under normal and intended conditions of product use.
- Hands** : Rubber gloves.



Personal protection in case of a large spill : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear. Wash hands, forearms and face thoroughly after handling compounds and before eating, smoking and using the lavatory and at the end of the day. Follow good industrial hygiene practice.

9 . Physical and chemical properties

- Physical state** : Liquid.
- pH** : Acidic.
- Boiling/condensation point** : The lowest known value is 100°C (212°F) (Water).
- Melting/freezing point** : May start to solidify at 0°C (32°F) based on data for: Water.
- Relative density** : Weighted average: 1.03 (Water = 1)
- Vapor pressure** : The highest known value is 2.3 kPa (17.5 mm Hg) (at 20°C) (Water).
- Vapor density** : The highest known value is 0.62 (Air = 1) (Water).
- Evaporation rate** : 0.36 (Water) compared with Butyl acetate.
- Solubility** : Easily soluble in cold water, hot water, methanol, acetone.

10 . Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Highly reactive or incompatible with the following materials: acids. Reactive with oxidizing materials, metals and alkalis.
- Hazardous decomposition products** : These products are halogenated compounds, hydrogen chloride.
- Hazardous polymerization** : Will not occur.

11 . Toxicological information

Product/ingredient name	Test	Result	Route	Species
Ammonium chloride	LD50	1650 mg/kg	Oral	Rat
	LD50	1300 mg/kg	Oral	Mouse
Potassium carbonate	LD50	1870 mg/kg	Oral	Rat
	LD50	2570 mg/kg	Oral	Mouse

Acute Effects

- Eyes** : Irritating to eyes.
- Skin** : Irritating to skin.
- Inhalation** : Irritating to respiratory system.

- Ingestion** : May be harmful if swallowed.
- Potential chronic health effects** : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogenic effects: Not available.
- Target organs** : Contains material which causes damage to the following organs: upper respiratory tract, skin, eye, lens or cornea.

12 . Ecological information

Product/ingredient name	Ecotoxicity data		
	Species	Period	Result
Ammonium chloride	Oncorhynchus mykiss (LC50)	96 hour(s)	0.08 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.11 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.16 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.21 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.25 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.25 mg/l
Potassium carbonate	Pimephales promelas (LC50)	96 hour(s)	<510 mg/l

- Environmental precautions** : No known significant effects or critical hazards.
- Products of degradation** : These products are carbon oxides and water, nitrogen oxides, halogenated compounds. Some metallic oxides.
- Toxicity of the products of biodegradation** : The products of degradation are more toxic than the product itself.

13 . Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.

14 . Transport information

- NAERG** : Not applicable.
- Regulatory information**
- UN/ IMDG/IATA TDG** : Not regulated by any transport mode.

15 . Regulatory information

- Canada**
- WHMIS (Canada)** : Class D-2B: Material causing other toxic effects (Toxic).



DSL : All components listed.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

International lists : This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

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

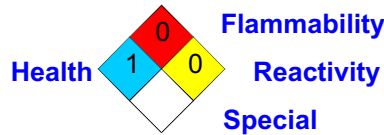
HMIS RATING

Health	*	1
Fire hazard		0
Physical Hazard		0
Personal protection		C

HAZARD RATINGS

- 4- Extreme
- 3- Serious
- 2- Moderate
- 1- Slight
- 0- Minimal

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



References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

Date of issue : 03/28/2006
Version : 1

Notice to reader

To the best of our knowledge, the information contained 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.

SAFETY DATA SHEET



Spin Columns

1. Identification of the substance/preparation and of the company/undertaking

Product name : Spin Columns **Manufacturer** : Norgen Biotek Corp.
3430 Schmon Parkway
Thorold, Ontario
Canada L2V 4Y6
Tel. (905)-227-8848
Fax. (905)-227-1061

Chemical product name : Not applicable. **Supplier** : Norgen Biotek Corp.
3430 Schmon Parkway
Thorold, Ontario
Canada L2V 4Y6
Tel. (905)-227-8848
Fax. (905)-227-1061

Synonyms : Not available. **Emergency telephone number** : Canada: CANUTEC-1-613-996-6666
US: CHEMTREC-1-800-424-9300

Chemical Formula : Not applicable.

Material Uses : Spin columns
Catalog#

2. Composition / information on ingredients

Substance/Preparation : Preparation.

Chemical name	CAS No.	%	EC Number	Classification
United States				
1) Silicon Carbide	409-21-2	70-100	206-991-8	Not applicable.
Germany				
1) Silicon Carbide	409-21-2	70-100	206-991-8	Not applicable.
See Section 16 for the full text of the R Phrases declared above				
United Kingdom (UK)				
1) Silicon Carbide	409-21-2	70-100	206-991-8	Not applicable.
Japan				
1) Silicon Carbide	409-21-2	70-100	Listed on METI.	Not applicable.
Canada				
1) Silicon Carbide	409-21-2	70-100	206-991-8	Not applicable.

This material is classified as non-hazardous under the United States OSHA regulation, the European DSD/DPD Directives and several countries specific requirements, in Japan and under the Canadian WHMIS regulation.

See Section 8 for Exposure Limits.
See Section 11 for Toxicological Data.
See Section 14 for UN Number.

3. Hazards identification

Physical State and Appearance : Solid. (Powdered solid.)

Emergency Overview : No specific hazard.
USE WITH CARE
Do not breathe dust.

Routes of Entry : Inhalation.

The substance is not classified as dangerous according to Directive 2001/59/EC.

Classification in Europe :

Effects and symptoms

Inhalation : Slightly hazardous in case of inhalation (lung irritant). Can cause silicosis.

Skin Contact : Slightly hazardous in case of skin contact (irritant). Non-sensitizer for skin.

Eye Contact : Non-irritating to the eyes.

Aggravating conditions : Repeated or prolonged exposure may aggravate medical condition. Do not break container and avoid breathing dust.

4. First-aid measures

First-Aid measures

- Inhalation** : If inhaled, remove to fresh air. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.
- Skin Contact** : Wash with soap and water. Get medical attention if irritation develops. Cold water may be used.
- Eye Contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention if irritation occurs.
- Notes to physician** : Not available.
- Protection of first-aiders** : Not available.

5. Fire-fighting measures

Extinguishing Media

- Suitable** : Use extinguishing media suitable for surrounding materials.
- Unsuitable.** : Not available.
- Unusual fire/explosion hazards** : Not available.
- Hazardous thermal (de)composition products** : Not applicable.
- Special fire-fighting procedures** : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
- Protection of fire-fighters** : Not applicable.

6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist before handling this product.
- Environmental Precautions and Clean-up Methods** : Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Note: See section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

- Handling** : Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.
- Germany - Storage Code** : Not available.

8. Exposure controls/personal protection

- Engineering measures** : Good general ventilation should be sufficient to control airborne levels.
- Hygiene measures** : Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
United States	
1) Silicon Carbide	<p>ACGIH TLV (United States, 2001). Notes: 1996 Adoption The value is for total dust containing no asbestos and < 1% crystalline silica. Refers to Appendix A – Carcinogens. TWA: 10 mg/m³</p> <p>NIOSH REL (United States, 2001). TWA: 5 mg/m³ Period: 10 hour(s). Form: Respirable fraction</p> <p>OSHA PEL (United States, 1971). TWA: 5 MGM3 Form: Respirable fraction TWA: 15 MGM3 Form: Total dust</p> <p>OSHA PEL 1989 (United States, 1989). TWA: 5 mg/m³ Form: Respirable fraction TWA: 10 mg/m³ Form: Total dust</p>
Germany	
1) Silicon Carbide	Not available.
United Kingdom (UK)	
1) Silicon Carbide	Not available.
Japan	
1) Silicon Carbide	Not available.
Canada	
1) Silicon Carbide	Not available.

- Recommended monitoring procedures** : Not available.

Personal protective equipment

- Respiratory system** : Dust respirator. Be sure to use an approved/certified respirator or equivalent.
- Skin and body** : Lab coat.
- Hands** : Gloves.
- Eyes** : Safety glasses.

9. Physical and chemical properties

Physical state	: Solid. (Powdered solid.)
Color	: Grey.
Odor	: Odorless.
pH	: Not applicable.
Flash point	: Not applicable.
Explosive properties	: Risks of explosion of the product in presence of mechanical impact: Not applicable. Risks of explosion of the product in presence of static discharge: Not applicable.
Density	: The only known value is 3.23 (Water = 1) (Silicon Carbide).
Solubility	: Insoluble in cold water, hot water.

10. Stability and reactivity

Stability	: The product is stable at room temperature.
Conditions to avoid	: Not available.
Materials to avoid	: Reactive with oxidizing agents, acids.
Hazardous Decomposition Products	: Not applicable.

11. Toxicological information

Acute toxicity

<u>Ingredient Name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Silicon Carbide	Not available.	Not available.	Not available.	Not available.

Skin irritation	: Non-irritant for skin.
Eye irritation	: Hazardous in case of eye contact (irritant).

Sensitization	: Non-sensitizer for skin.
---------------	----------------------------

Chronic toxicity : Repeated or prolonged exposure may aggravate medical condition. Do not break container and avoid breathing dust.

Carcinogenic Effects : Not available.

Mutagenic Effects : Not available.

Reproduction toxicity : Not available.

Developmental and Teratogenic Effects : Not available.

12. Ecological information

Ecotoxicity Data

<u>Ingredient Name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
Silicon Carbide	Not available.	Not available.	Not available.

Mobility : Not available.

Persistence/degradability : Not available.

Bioaccumulative potential : Not available.

Soil/Water Partition Coefficient (K_{ow}) : Not available.

13. Disposal considerations

Methods of disposal : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Waste Classification : Not applicable.

European Waste Catalogue (EWC) : Not available.

Hazardous Waste : To present knowledge of the supplier, this product is not regarded as hazardous waste as defined by EU Directive 94/904/EC.

14. Transport information

International transport regulations

Spin Columns

Regulatory Information	Classification
DOT (United States)	Not regulated.
ADR/RID (Europe)	Not regulated.
ADN (Europe)	Not regulated.
Road Law (Japan)	Not regulated.
TDG (Canada)	Not regulated.
IATA-DGR	Not regulated.
IMDG	Not regulated.

15. Regulatory information

- HCS (United States)** : Not controlled under the HCS (United States).
- U.S. Federal Regulations** : TSCA 8(b) inventory: Components listed.
SARA 302/304/311/312 extremely hazardous substances: No ingredient was found.
SARA 302/304 emergency planning and notification: No ingredient was found.
SARA 302/304/311/312 hazardous chemicals: Silicon Carbide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Silicon Carbide: Immediate (Acute) Health Hazard
SARA 313 toxic chemical notification and release reporting: No ingredient was found.
Clean Water Act (CWA) 307: No ingredient was found.
Clean Water Act (CWA) 311: No ingredient was found.
Clean Air Act (CAA) 112 accidental release prevention: No ingredient was found.
Clean Air Act (CAA) 112 regulated flammable substances: No ingredient was found.
Clean Air Act (CAA) 112 regulated toxic substances: No ingredient was found.
- State Regulations** : Pennsylvania RTK: Silicon Carbide: (generic environmental hazard)
Massachusetts RTK: Silicon Carbide
New Jersey: Silicon Carbide
California Prop. 65: No ingredient was found.
- EU Regulations**
- Risk Phrases** : This product is not classified according to the EU regulations.
- Safety Phrases** : Not applicable.
- Contains** : No hazardous ingredients at or above concentration to be considered.
- Product Use** : Classification and labeling have been performed according to EU directives 67/548/EEC, 88/379/EEC including amendments and the intended use.
- Consumer applications.
- National regulations**
- Germany**
- Ordinance on Combustible Liquids** : Class: Omitted
- Hazard class for water (GWK)** : 1
- United Kingdom (UK)**
- VOC Content (Retail Use)** : Not applicable.
- VOC Content (Industrial Use)** : Contains 0 wt% VOC.
- Japan Control Laws** : Contains no substances that is considered hazardous at the present concentration level.
- WHMIS (Canada)** : Not controlled under WHMIS (Canada).
DSL/NDSL: Components listed.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. Other information

US Label Requirements : USE WITH CARE

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

Health	1
Fire Hazard	0
Reactivity	0
Personal Protection	E

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



Europe Label :

Japan Label :

: Contains no substances that is considered hazardous at the present concentration level.

WHMIS Label :

HISTORY

Date of printing : 3/26/2003.

Date of issue : 3/26/2003.

Date of Previous Issue : No Previous Validation.

Version : 1

Prepared by : Kemika XXI inc.

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Version 1

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