

## Material Safety Data Sheet

United States  
English

## Section 1. Chemical product and company identification

**Product name** Lysis Solution; part of 'DNAscan BioChipSet™ Cassette'

**Catalogue Number** NB-BCS-0002



**Material uses** Industrial applications: Analytical chemistry. Research.  
**Product type** Liquid.  
**Validation date** 25 November 2013  
**Print date** 25 November 2013  
**Supplier** GE Healthcare UK Ltd  
 Amersham Place  
 Little Chalfont  
 Buckinghamshire HP7 9NA  
 England  
 +44 0870 606 1921

**In case of emergency**

US	ChemTrec (US)	1-800-424-9300
Canada	ChemTrec (US)	1-703-527-3887

## 2. Hazards identification

**Physical state** Liquid.  
**Color** Clear.  
**Odor** Odorless.  
**Signal word** WARNING!  
**Hazard statements** CAUSES EYE AND SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.  
**Precautionary measures** Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling.  
**OSHA/HCS status** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
**Routes of entry** Dermal contact. Eye contact. Inhalation. Ingestion.  
**Potential acute health effects**  
**Eyes** Irritating to eyes.  
**Skin** Irritating to skin.  
**Inhalation** Moderately irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.  
**Ingestion** Harmful if swallowed.

**Potential chronic health effects**

**Chronic effects** Contains material that can cause target organ damage.  
**Carcinogenicity** No known significant effects or critical hazards.  
**Mutagenicity** No known significant effects or critical hazards.  
**Teratogenicity** No known significant effects or critical hazards.  
**Developmental effects** No known significant effects or critical hazards.  
**Fertility effects** No known significant effects or critical hazards.  
**Target organs** Contains material which may cause damage to the following organs: central nervous system (CNS).

**Over-exposure signs/symptoms**

**Inhalation** Adverse symptoms may include the following:  
 respiratory tract irritation  
 coughing  
**Ingestion** No specific data.



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<b>Skin</b>	Adverse symptoms may include the following: irritation redness
<b>Eyes</b>	Adverse symptoms may include the following: pain or irritation watering redness
<b>Medical conditions aggravated by over-exposure</b>	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.
See toxicological information (Section 11)	

### 3. Composition/information on ingredients

Name	CAS number	% by weight
guanidinium chloride	50-01-1	20 - 60
2-amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	1185-53-1	0.1 - 5
disodium dihydrogen ethylenediaminetetraacetate	139-33-3	0.5 - 2

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

### Section 4. First aid measures

<b>Eye contact</b>	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact</b>	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation</b>	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion</b>	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
<b>Notes to physician</b>	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

### Section 5. Fire-fighting measures

<b>Flammability of the product</b>	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Extinguishing media</b>	
<b>Suitable</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Not suitable</b>	None known.
<b>Special exposure hazards</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
<b>Hazardous combustion products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### Section 6. Accidental release measures

<b>Personal precautions</b>	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
<b>Environmental precautions</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
<b>Methods for cleaning up</b>	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
<b>Small spill</b>	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.



## Section 7. Handling and storage

<b>Handling</b>	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Storage</b>	Store between the following temperatures: 5 to 25°C (41 to 77°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Consult local authorities for acceptable exposure limits.

<b>Recommended monitoring procedures</b>	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
<b>Engineering measures</b>	Use only with adequate ventilation. If user operations generate dust, fumes, gas, 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.
<b>Hygiene measures</b>	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<b>Personal protection</b>	
<b>Respiratory</b>	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
<b>Hands</b>	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
<b>Eyes</b>	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
<b>Skin</b>	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Environmental exposure controls</b>	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## Section 9. Physical and chemical properties

<b>Physical state</b>	Liquid.
<b>Color</b>	Clear.
<b>Odor</b>	Odorless.
<b>pH</b>	7 to 8
<b>Volatility</b>	0% (v/v)
<b>Solubility</b>	Easily soluble in the following materials: cold water and hot water.

## Section 10. Stability and reactivity

<b>Chemical stability</b>	The product is stable.
<b>Conditions to avoid</b>	No specific data.
<b>Incompatible materials</b>	No specific data.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.



## Section 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Guanidinium chloride	LD50 Oral	Rat	475 mg/kg	-
disodium dihydrogen ethylenediaminetetraacetate	LD50 Oral	Rat	2000 mg/kg	-

**Conclusion/Summary** Not available.

### Chronic toxicity

**Conclusion/Summary** Not available.

### Irritation/Corrosion

**Conclusion/Summary** Not available.

### Sensitizer

**Conclusion/Summary** Not available.

### Carcinogenicity

**Conclusion/Summary** Not available.

### Mutagenicity

**Conclusion/Summary** Not available.

### Teratogenicity

**Conclusion/Summary** Not available.

### Reproductive toxicity

**Conclusion/Summary** Not available.

## Section 12. Ecological information

**Environmental effects** No known significant effects or critical hazards.

### Aquatic ecotoxicity

disodium dihydrogen ethylenediaminetetraacetate	Acute LC50 320 mg/l	Fish	96 hours
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**Conclusion/Summary** Not available.

### Persistence/degradability

**Conclusion/Summary** Not available.

## Section 13. Disposal considerations

**Waste disposal** The generation of waste should be avoided or minimized wherever possible. 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 local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.



## Section 14. Transport information

IATA-DGR Class	Classes	PG*
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PG\* : Packing group

## Section 15. Regulatory information

**HCS Classification** Irritating material  
Target organ effects

**U.S. Federal regulations**  **SCA 8(a) CDR Exempt/Partial exemption:** Not determined  
 **United States inventory (TSCA 8b):** All components are listed or exempted.

**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** Not listed

**Clean Air Act Section 602 Class I Substances** Not listed



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**Clean Air Act Section 602 Class II Substances**

Not listed


DEA List I Chemicals (Precursor Chemicals) Not listed

DEA List II Chemicals (Essential Chemicals) Not listed

**SARA 302/304****Composition/information on ingredients**

No products were found.

SARA 304 RQ  Not applicable.**SARA 311/312**Classification  Immediate (acute) health hazard  
Delayed (chronic) health hazard**Composition/information on ingredients**

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
 Guanidinium chloride	20 - 60	No.	No.	No.	Yes.	Yes.
2-amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	0.1 - 5	No.	No.	No.	Yes.	No.
disodium dihydrogen ethylenediaminetetraacetate	0.5 - 2	No.	No.	No.	Yes.	No.

**State regulations**

Massachusetts None of the components are listed.

New York None of the components are listed.

New Jersey None of the components are listed.

Pennsylvania None of the components are listed.

**California Prop. 65**

United States inventory (TSCA 8b) All components are listed or exempted.

**International regulations**

International lists

**Australia inventory (AICS):** All components are listed or exempted.  
**China inventory (IECSC):** All components are listed or exempted.  
**Japan inventory:** All components are listed or exempted.  
**Korea inventory:** All components are listed or exempted.  
**Malaysia Inventory (EHS Register):** Not determined.  
**New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.  
**Philippines inventory (PICCS):** All components are listed or exempted.  
**Taiwan inventory (CSNN):** Not determined.

Chemical Weapons Convention List Schedule I Chemicals Not listed

Chemical Weapons Convention List Schedule II Chemicals Not listed

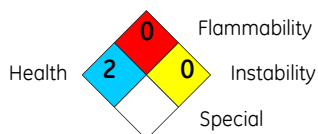
Chemical Weapons Convention List Schedule III Chemicals Not listed

**Section 16. Other information**

Label requirements CAUSES EYE AND SKIN IRRITATION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

The customer is responsible for determining the PPE code for this material.

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



Indicates information that has changed from previously issued version.

**History**

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<b>Date of printing</b>	25 November 2013	<b>Date of previous issue</b>	27 May 2013
<b>Date of issue</b>	25 November 2013	<b>Version</b>	2

**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.



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