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A Geno Technology, Inc. (USA) brand name

Safety Data Sheet

Antigen Retrieval Solution, Citrate (pH 6.0) [50X]

Cat. # 786-1260



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www.GBiosciences.com



Antigen Retrieval Solution, Citrate (pH 6.0) [100X]

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 6/20/2017 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : Antigen Retrieval Solution, Citrate (pH 6.0) [100X]
Product code : 160A

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.
9800 Page Avenue
St. Louis, MO 63132-1429, USA
Tel.1-800-628-7730
www.GBiosciences.com

1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Serious eye damage/eye irritation, Category 2 H319 Causes serious eye irritation.
Full text of H statements : see section 16

2.2. Label elements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Warning
Hazard statements (GHS US) : H319 - Causes serious eye irritation
Precautionary statements (GHS US) : P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, and hearing protection.
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 or attention.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

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2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

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3.2. Mixtures

| Name | Common Name (Synonyms) | Product identifier | % | GHS US classification |
|-------------|---|--------------------|---------|---------------------------------------|
| citric acid | 1,2,3-Propanetricarboxylic acid, 2-hydroxy- / 1,2,3-propanetricarboxylic acid, 2-hydroxy-, anhydrous / 2-hydroxy-1,2,3-propanetricarboxylic acid / 2-hydroxy-1,2,3-propanetricarboxylic acid / 2-hydroxy-1,2,3-propanetricarboxylic acid, anhydrous / aciletten / anhydrous citric acid / beta-hydroxytricarballic acid / beta-hydroxytricarballic acid, anhydrous / beta-hydroxytricarboxylic acid / citretten / citric acid / citric acid anhydrous fine granular 16/40 / citric acid anhydrous granular / citric acid anhydrous granular 5N / citric acid anhydrous medium granular / citric acid anhydrous powder / citro / citroenzuur, anhydraat / E 330 / E330 / FEMA no 2306 / hydroxytricarballic acid / MC-1, acidic membrane cleaner / NSC 30279 | CAS-No.: 77-92-9 | 10 – 50 | Skin Corr. 1, H314 STOT SE 3, H335 |

Full text of hazard classes and H-statements : see section 16

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SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

| | |
|---------------------------------------|--|
| First-aid measures general | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). |
| First-aid measures after inhalation | : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest. |
| First-aid measures after skin contact | : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water. |
| First-aid measures after eye contact | : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| First-aid measures after ingestion | : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell. |
| Self protection of the first-aider | : First aid workers will be equipped with suitable personal protective equipment. |

4.2. Most important symptoms/effects, acute and delayed

| | |
|---|--|
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. |
| Symptoms/effects | : Not expected to present a significant hazard under anticipated conditions of normal use. |
| Symptoms/effects after inhalation | : None under normal conditions. |
| Symptoms/effects after skin contact | : None under normal conditions. |
| Symptoms/effects after eye contact | : Eye irritation. |
| Symptoms/effects after ingestion | : None under normal conditions. |

4.3. Indication of immediate medical attention and special treatment needed, if necessary

| | |
|-----------------------------------|--------------------------|
| Other medical advice or treatment | : Treat symptomatically. |
|-----------------------------------|--------------------------|

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream. |

5.2. Specific hazards arising from the chemical

| | |
|--|--------------------------------|
| Fire hazard | : No fire hazard. |
| Explosion hazard | : No direct explosion hazard. |
| Hazardous decomposition products in case of fire | : Toxic fumes may be released. |

5.3. Special protective equipment and precautions for fire-fighters

| | |
|--------------------------------|---|
| Firefighting instructions | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

| | |
|------------------|---|
| General measures | : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage. |
|------------------|---|

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For non-emergency personnel

- Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. Avoid contact with skin and eyes.

For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.
Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.2. Methods and materials for containment and cleaning up

- For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

- Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.
Packaging materials : Store always product in container of same material as original container.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

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8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:

Avoid all unnecessary exposure.

Hand protection:

Protective gloves. Wear protective gloves.

Eye protection:

Chemical goggles or safety glasses. Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

Personal protective equipment symbol(s):



Other information:

Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

| | |
|---|----------------------------------|
| Physical state | : Liquid |
| Color | : Colorless |
| Odor | : characteristic |
| Odor threshold | : No data available |
| pH | : No data available |
| Melting point | : Not applicable |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : No data available |
| Flammability (solid, gas) | : Not applicable. Non flammable. |
| Vapor pressure | : No data available |
| Relative vapor density at 20°C | : No data available |
| Relative density | : No data available |
| Solubility | : No data available |
| Partition coefficient n-octanol/water (Log Pow) | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Viscosity, kinematic | : No data available |
| Explosion limits | : No data available |
| Particle characteristics | : No data available |

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

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SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

| citric acid (77-92-9) | |
|-----------------------|---|
| LD50 oral rat | 11700 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral, 7 day(s)) |
| LD50 oral | 5400 mg/kg body weight (Equivalent or similar to OECD 401, Mouse, Male / female, Experimental value, Oral, 10 day(s)) |
| LD50 dermal rat | > 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s)) |
| ATE US (oral) | 11700 mg/kg body weight |

Skin corrosion/irritation : Not classified

| citric acid (77-92-9) | |
|-----------------------|------------------|
| pH | 1.8 (5 %, 25 °C) |

Serious eye damage/irritation : Causes serious eye irritation.

| citric acid (77-92-9) | |
|-----------------------|------------------|
| pH | 1.8 (5 %, 25 °C) |

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified

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| citric acid (77-92-9) | |
|-----------------------|-----------------------------------|
| STOT-single exposure | May cause respiratory irritation. |

STOT-repeated exposure : Not classified

| citric acid (77-92-9) | |
|--------------------------|------------------------------------|
| LOAEL (oral,rat,90 days) | 8000 mg/kg body weight Animal: rat |
| NOAEL (oral,rat,90 days) | 4000 mg/kg body weight Animal: rat |

Aspiration hazard : Not classified

| citric acid (77-92-9) | |
|-----------------------|----------------|
| Viscosity, kinematic | Not applicable |

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : None under normal conditions.
Symptoms/effects after eye contact : Eye irritation.
Symptoms/effects after ingestion : None under normal conditions.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified

| citric acid (77-92-9) | |
|------------------------------------|---|
| LC50 - Fish [1] | 440 – 760 mg/l (Equivalent or similar to OECD 203, 48 h, Leuciscus idus, Static system, Fresh water, Experimental value, Nominal concentration) |
| EC50 - Other aquatic organisms [1] | > 50 mg/l Test organisms (species): other aquatic crustacea: |

12.2. Persistence and degradability

| Antigen Retrieval Solution, Citrate (pH 6.0) [100X] | |
|---|------------------|
| Persistence and degradability | Not established. |

| citric acid (77-92-9) | |
|---------------------------------|-------------------------------------|
| Persistence and degradability | Not established. |
| Biochemical oxygen demand (BOD) | 0.42 g O ₂ /g substance |
| Chemical oxygen demand (COD) | 0.728 g O ₂ /g substance |
| ThOD | 0.686 g O ₂ /g substance |

12.3. Bioaccumulative potential

| Antigen Retrieval Solution, Citrate (pH 6.0) [100X] | |
|---|------------------|
| Bioaccumulative potential | Not established. |

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| citric acid (77-92-9) | |
|---|-----------------------------------|
| Partition coefficient n-octanol/water (Log Pow) | -1.8 – -1.55 (Experimental value) |
| Bioaccumulative potential | Not established. |

12.4. Mobility in soil

| citric acid (77-92-9) | |
|--|--|
| Surface tension | No data available in the literature |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 1 (log Koc, SRC PCKOCWIN v2.0, Calculated value) |
| Ecology - soil | Highly mobile in soil. |

12.5. Other adverse effects

| | |
|------------------------------|-------------------------------------|
| Ozone | : Not classified |
| Fluorinated greenhouse gases | : No |
| Other information | : Avoid release to the environment. |

SECTION 13 Disposal considerations

| | |
|--|--|
| Regional legislation (waste) | : Disposal must be done according to official regulations. |
| Waste treatment methods | : Waste treatment methods. |
| Sewage disposal recommendations | : Disposal must be done according to official regulations. |
| Product/Packaging disposal recommendations | : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations. |
| Additional information | : Do not re-use empty containers. |
| Ecological waste information | : Avoid release to the environment. |

SECTION 14 Transport information

In accordance with DOT / TDG / IATA

14.1. UN number

| | |
|---------------|------------------|
| UN-No. (DOT) | : Not applicable |
| UN-No. (TDG) | : Not applicable |
| UN-No. (IATA) | : Not applicable |

14.2. UN Proper Shipping Name

| | |
|-----------------------------|------------------|
| Proper Shipping Name (DOT) | : Not applicable |
| Proper Shipping Name (TDG) | : Not applicable |
| Proper Shipping Name (IATA) | : Not applicable |

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not applicable

TDG
Transport hazard class(es) (TDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

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14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not applicable

TDG
Not applicable

IATA
Not applicable

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

| Name | CAS-No. | Listing | Commercial status | Flags |
|-------------|---------|---------|-------------------|-------|
| citric acid | 77-92-9 | Present | | |

15.2. International regulations

CANADA

citric acid (77-92-9)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

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Date of issue : 6/20/2017
Other information : None.

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| Full text of hazard classes and H-statements | |
|--|---|
| H314 | Causes severe skin burns and eye damage |
| H319 | Causes serious eye irritation |
| H335 | May cause respiratory irritation |

| Abbreviations and acronyms | |
|----------------------------|---|
| ACGIH | American Conference of Government Industrial Hygienists |
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BLV | Biological limit value |
| BOD | Biochemical oxygen demand (BOD) |
| CAS-No. | Chemical Abstract Service number |
| CLP | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 |
| COD | Chemical oxygen demand (COD) |
| CSA | Chemical safety assessment |
| DMEL | Derived Minimal Effect level |
| DNEL | Derived-No Effect Level |
| EC-No. | European Community number |
| EC50 | Median effective concentration |
| ED | Endocrine disruptor |
| EN | European Standard |
| EWC | European waste catalogue |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Median lethal concentration |
| LD50 | Median lethal dose |
| LOAEL | Lowest Observed Adverse Effect Level |
| Log Kow | Partition coefficient n-octanol/water (Log Kow) |
| Log Pow | Partition coefficient n-octanol/water (Log Pow) |
| MAK | maximum workplace concentration |
| NOAEC | No-Observed Adverse Effect Concentration |
| NOAEL | No-Observed Adverse Effect Level |
| NOEC | No-Observed Effect Concentration |
| N.O.S. | Not Otherwise Specified |

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| Abbreviations and acronyms | |
|----------------------------|--|
| OECD | Organisation for Economic Co-operation and Development |
| OEL | Occupational Exposure Limit |
| OSHA | Occupational Safety & Health Administration |
| PBT | Persistent Bioaccumulative Toxic |
| PNEC | Predicted No-Effect Concentration |
| PPE | Personal protection equipment |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS | Safety Data Sheet |
| STP | Sewage treatment plant |
| TF | Technical function |
| ThOD | Theoretical oxygen demand (ThOD) |
| TLM | Median Tolerance Limit |
| TWA | Time Weighted Average |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and Very Bioaccumulative |
| UFI | Unique Formula Identifier |

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.