

SAFETY DATA SHEET

Binding Buffer A

Section 1. Identification

Product Identifier: Binding Buffer A
Product code: 90063, 90064, 90065, T003, 24125, 90175, NBBUFFBA-8ML
Product Type: Liquid
Supplier's details: Norgen Biotek Corporation
3430 Schmon Parkway
Thorold, ON
Canada L2V 4Y6
Tel: (905) 227-8848
Fax: (905) 227-1061
Toll Free: 1-866-667-4362
E-mail: techsupport@norgenbiotek.com

Emergency telephone number (with hours of operation): CHEMTREC
U.S. & Canada: 1-800-424-9300

Section 2. Hazard Identification

Classification of the Substance or mixture: SERIOUS EYE DAMAGE - Category 1
CORROSIVE TO METALS - Category 1
SKIN CORROSION - Category 1B
EYE IRRITATION - Category 2A

GHS label elements
Hazard Pictograms:



Signal Word: Warning
Hazard Statements: Causes eye irritation
May be corrosive to metals
Causes skin burns

Precautionary statements:

Prevention: If medical advice is needed, have product container or label at hand
 Keep out of reach of children
 Read label before use
 Do not breathe dust/fume/gas/mist/vapour/spray
 Wash thoroughly after handling
 Wear protective gloves/protective clothing/ eye protective/ face protection
 Do not eat, drink or smoke when using this product
 Wash contaminated clothing before using

Response: IF SWALLOWED:
 Rinse mouth. DO NOT induce vomiting
 IF ON SKIN:
 Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 IF INHALED:
 Remove victim to fresh air and keep at rest in a position comfortable for breathing
 IF IN EYES:
 Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

Section 2. Hazard Identification

Storage: Not applicable.
Disposal: Not applicable.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture
Other means of identification:

Ingredient name	% (w/w)	CAS number
Citric Acid	10 - 30	77-92-9
Phosphoric Acid	3 - 7	7664-38-2
Sodium Hydroxide	25 - 40	1310-73-2

Ranges id listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye Contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.
- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact:** Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion:** Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Section 4. First-aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact:** Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.
- Inhalation:** Move exposed individual to fresh air. Loosen clothing as necessary and position individual in a comfortable position. Seek medical advice if discomfort or irritation persists. If breathing is difficult, give oxygen.
- Skin contact:** Wash affected area with soap and water. Rinse thoroughly. Seek medical attention if irritation, discomfort or vomiting persists.
- Ingestion:** Rinse mouth thoroughly. DO NOT induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists.

Over-exposure signs/symptoms

- Eye contact:** Not applicable
- Inhalation:** Not applicable
- Skin contact:** Not applicable
- Ingestion:** Not applicable

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

Notes to physician: Utilize SDS documentation for treatment

Specific treatments: Not applicable

Protection of first-aiders: Not applicable

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing

media: If in laboratory setting, follow laboratory fire suppression procedure. Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

Unsuitable

extinguishing media: Not applicable

Specific hazards

arising from the

chemical: Not applicable

Hazardous thermal decomposition

products: Not applicable

Special protective

actions for

fire-fighters: Move product containers away from fire or keep cool with water spray as a protective measure, where feasible. Use spark-proof tools and explosion proof equipment

Special protective

equipment for

fire-fighters: Use NIOSH - approved respiratory protection/breathing apparatus.

Section 6. Accidental release measures

Personal precautions, protective equipment, and emergency procedures

For non-emergency

personnel: Not available

For emergency

responders: Not available

Environmental

precautions: Prevent from reaching drains, sewers or waterway.

Methods and materials for containment and cleaning up

Small spill: If in laboratory setting, follow Chemical Hygiene Plan procedures. Place into properly labeled containers for recovery or disposal. If necessary, use trained response staff/contractor. Collect liquid and dilute with water or basic solution. Decant water to drain with excess water. Absorb with suitable material. Always obey local regulations.

Large spill: Small spill protocol applies for big spills.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Wear protective equipment while handling.

Advice on general occupational

hygiene: Avoid contact with eyes, skin and clothing. Wash hands after handling.

Conditions for safe storage, including

incompatibilities: Store away from foodstuffs, in cool, dry, conditions. Store with corrosives

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Sodium Hydroxide	2 mg/m ³
Citric Acid	Not applicable
Phosphoric Acid	1 mg/m ³

Appropriate engineering

controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use.

exposure controls: Not applicable

Individual protection measures

Hygiene measures: The usual precautionary measures are to be adhered to when handling chemicals. Keep away from food, beverages and feed sources. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Do not inhale gases/fumes/dust/vapor/aerosols. Avoid contact with eyes and skin.

Eye/face protection: Safety glasses with side shields or goggles.

Skin protection: The glove material has to be impermeable and resistant to the product being handled. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Respiratory protection: Not requires under normal confusions of use, Use suitable respiratory protective device when high concentration are present. Use suitable respiratory protective device when aerosol or mist is formed.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance:

Physical State: Liquid
Color: Colorless
Odor: Not available.
Odor threshold: Not available.
pH: 2.5
**Melting point/
freezing point:** Not applicable.
**Boiling point, initial
boiling point, and
boiling range:** Not available.
Flash point: Not applicable.
Evaporation rate: Not available.
Flammability: Not available.
**Lower and upper
explosion limit/
flammability limit:** Not available.
Vapor pressure: Not available.
**Relative vapor
density:** Not available.
Relative density: Not available.
Solubility: Miscible in water.
**Partition coefficient:
n-octanol/water** Not applicable.
**Auto-ignition
temperature:** Not available.
**Decomposition
temperature:** Not available.
Viscosity: Not available.

Flow time

(ISO 2431): Not available.

Particle characteristics

Median particle size: Not applicable.

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of

hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid: No specific data.

Incompatible

materials: Reactive or incompatible with the following materials; oxidizing materials, acids and alkalis.

Hazardous

decomposition

products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicology information

Information on toxicology effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Phosphoric Acid	Oral	Rat	1530 mg/m ³	-
Citric Acid	-	-	-	-
Sodium Hydroxide	-	-	-	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
-	-	-	-	-	-

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

**Information on the
likely routes of**

exposure: Not Available

Potential acute health effects

Eye contact: Not Available

Inhalation: Not Available

Skin contact: Not Available

Ingestion: Not Available

Symptoms related to the physical, chemical, and toxicological characteristics

Eye contact: Not Available

Inhalation: Not Available

Skin contact: Not Available

Ingestion: Not Available

Delayed and immediate effects and chronic effects from short- and long-term exposure

Short term exposure

Potential immediate

effects: Not available

Potential delayed

effects: Not available

Long term exposure

Potential immediate

effects: Not available

Potential delayed

effects: Not available

Potential chronic health effects

General: Not available

Carcinogenicity: Not available

Mutagenicity: Not available

Reproductive

toxicity: Not Available

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/m ³)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/m ³)	Inhalation (dusts and mists) (mg/l)
Citric Acid	6730	-	-	-	-
Sodium Hydroxide	-	-	-	-	-
Phosphoric Acid	>1530	-	-	>850	-

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Citric Acid	1516 mg/L	Fish	96h
Sodium Hydroxide	-	-	-
Phosphoric Acid	3-3.25 mg/L EC50>100 mg/L	Bluegill Sunfish Algae	- -

Persistence and degradability

There is no data available.

Product/ingredient name	LogP _{ow}	BCF	Potential
Citric Acid	-1.8	-	Low.
Sodium Hydroxide	-	-	None.
Phosphoric Acid	-	-	-

Mobility in soil

Soil/water partition

coefficient (K_{oc}): Not available.

Other adverse effects: DO NOT release in water: phosphates may result in algae growth.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should 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 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 empty 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.

Section 14. Transport information

	TGD Classification	DOT Classification (US)	IMGD	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

AERG: Not applicable.

Special precautions

for user: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments:

Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI: The following components are listed: Phosphoric acid, sodium hydroxide and citric acid

CEPA Toxic substances: None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II, & III Chemicals

Not listed

Montreal Protocol

Not listed

Stockholm Convention on Persistent Organic Pollutants

Not listed

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed

UNECE Aarhus Protocol on POPs and Heavy Metals

Not Listed

Inventory list

Canada: All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date

of revision: 07/10/2024

Date of previous

issue: 12/15/2015

Version: 00

Prepared by: Norgen Biotek Corp.

Key to abbreviations: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
Log_{Pow} = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (Marpol = marine pollution)

SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Classification	Justification
SERIOUS EYE DAMAGE - Category 1	Calculation Method
CORROSIVE TO METALS - Category 1	Calculation Method
SKIN CORROSION - Category 1B	Calculation Method
EYE IRRITATION - Category 2A	Calculation Method

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

Column Activation Buffer

Section 1. Identification

Product Identifier: Column Activation Buffer
Product code: 17503, T009
Product Type: Liquid

Supplier's details: Norgen Biotek Corporation
3430 Schmon Parkway
Thorold, ON
Canada L2V 4Y6
Tel: (905) 227-8848
Fax: (905) 227-1061
Toll Free: 1-866-667-4362
E-mail: techsupport@norgenbiotek.com

Emergency telephone number (with hours of operation): CHEMTREC
U.S. & Canada: 1-800-424-9300

Section 2. Hazard Identification

Classification of the Substance or mixture: Not applicable

GHS label elements
Hazard Pictograms: Not applicable

Signal Word: Not applicable
Hazard Statements: Not applicable

Precautionary statements:
Prevention: Not applicable

Response:

Storage: Not applicable.
Disposal: Not applicable.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture
Other means of identification:

Ingredient name	% (w/w)	CAS number
Ammonium bicarbonate	<10	1066-33-7

Ranges id listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye Contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.
- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact:** Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion:** Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact:** No known significant effects or critical hazards
- Inhalation:** No known significant effects or critical hazards
- Skin contact:** No known significant effects or critical hazards
- Ingestion:** No known significant effects or critical hazards

Over-exposure signs/symptoms

Eye contact: No known significant effects or critical hazards
Inhalation: No known significant effects or critical hazards
Skin contact: No known significant effects or critical hazards
Ingestion: No known significant effects or critical hazards

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

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.No specific treatment.

Protection of

first-aiders: 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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing

media: Use an extinguisher agent suitable for the surrounding fire

Unsuitable

extinguishing media:None known

Specific hazards

arising from the

chemical: No specific fire or explosion hazard.

Hazardous thermal

decomposition

products: Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides

Special protective

actions for

fire-fighters: 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.

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.

Section 6. Accidental release measures

Personal precautions, protective equipment, and emergency procedures

For non-emergency personnel:

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.

For emergency responders:

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions:

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).

Methods and materials for containment and cleaning up

Small spill:

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

Large spill:

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.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. 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.

Advice on general occupational hygiene:

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. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including incompatibilities:

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. See Section 10 for incompatible materials before handling or use

Section 8. Exposure controls/personal protection**Control parameters****Occupational exposure limits**

No exposure limit value known for this concentration

Appropriate engineering

controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental

exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures: 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.

Eye/face protection: 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, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection: 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

Body protection: 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.

Other skin

protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance:
Physical State: Liquid
Color: Not available.
Odor: Not available.
Odor threshold: Not available.
pH: 7.7
**Melting point/
freezing point:** Not applicable.
**Boiling point, initial
boiling point, and
boiling range:** Not available.
Flash point: Not applicable.
Evaporation rate: Not available.
Flammability: Not available.
**Lower and upper
explosion limit/
flammability limit:** Not available.
Vapor pressure: Not available.
**Relative vapor
density:** Not available.
Relative density: Not available.
Solubility: Miscible in water.
**Partition coefficient:
n-octanol/water** Not applicable.
**Auto-ignition
temperature:** Not available.
**Decomposition
temperature:** Not available.
Viscosity: Not available.
**Flow time
(ISO 2431):** Not available.
Particle characteristics
Median particle size: Not applicable.

Section 10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	The product is stable.
Possibility of hazardous reactions:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid:	No specific data.
Incompatible materials:	Reactive or incompatible with the following materials; oxidizing materials, acids and alkalies.
Hazardous decomposition products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicology information

Information on toxicology effects

Acute toxicity

There is no data available.

Irritation/Corrosion

There is no data available.

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely routes of exposure:

Oral
Dermal
Inhalation

Potential acute health effects

Eye contact: No known significant effects or critical hazards.
Inhalation: No known significant effects or critical hazards.
Skin contact: No known significant effects or critical hazards
Ingestion: No known significant effects or critical hazards

Symptoms related to the physical, chemical, and toxicological characteristics

Eye contact: Adverse symptoms may include the following:
pain or irritation
watering
redness
Inhalation: No known significant effects or critical hazards
Skin contact: No known significant effects or critical hazards
Ingestion: No known significant effects or critical hazards

Delayed and immediate effects and chronic effects from short- and long-term exposure

Short term exposure

Potential immediate effects: No known significant effects or critical hazards
Potential delayed effects: No known significant effects or critical hazards

Long term exposure

Potential immediate effects: No known significant effects or critical hazards
Potential delayed effects: No known significant effects or critical hazards

Potential chronic health effects

General: No known significant effects or critical hazards
Carcinogenicity: No known significant effects or critical hazards
Mutagenicity: No known significant effects or critical hazards
Reproductive toxicity: No known significant effects or critical hazards

Numerical measures of toxicity

Acute toxicity estimates

Section 12. Ecological information

Toxicity

There is no data available.

Persistence and degradability

There is no data available.

Mobility in soil

Soil/water partition

coefficient (K_{oc}): Not available.

Other adverse effects: No known significant effect or critical hazards.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should 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 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 empty 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.

Section 14. Transport information

	TGD Classification	DOT Classification (US)	IMGD	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

AERG: Not applicable.

Special precautions for user:

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk
according to IMO
instruments: Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI: None of the components are listed
CEPA Toxic substances: None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II, & III Chemicals

Not listed

Montreal Protocol

Not listed

Stockholm Convention on Persistent Organic Pollutants

Not listed

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed

Inventory list

Canada: All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date

of revision: 07/23/2024

Date of previous

issue: 12/15/2021

Version: 00

Prepared by: Norgen Biotek Corp.

Key to abbreviations: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (Marpol = marine pollution)
SGG = Segregation Group

UN = United Nations

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

Wash Solution C

Section 1. Identification

Product Identifier:	Wash Solution C
Product code:	24120, 37920, 90036, 90037, 90038, 90155, 90156, NBWASHHC-30ML, T013
Product Type:	Liquid
Supplier's details:	Norgen Biotek Corporation 3430 Schmon Parkway Thorold, ON Canada L2V 4Y6 Tel: (905) 227-8848 Fax: (905) 227-1061 Toll Free: 1-866-667-4362 E-mail: techsupport@norgenbiotek.com
Emergency telephone number (with hours of operation):	CHEMTREC U.S. & Canada: 1-800-424-9300

Section 2. Hazard Identification

Classification of the Substance or mixture:	SERIOUS EYE DAMAGE - Category 1 CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1B EYE IRRITATION - Category 2A
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GHS label elements
Hazard Pictograms:



Signal Word:	Warning
Hazard Statements:	Causes eye irritation May be corrosive to metals Causes skin burns

Precautionary statements:

Prevention: If medical advice is needed, have product container or label at hand
 Keep out of reach of children
 Read label before use
 Do not breathe dust/fume/gas/mist/vapour/spray
 Wash thoroughly after handling
 Wear protective gloves/protective clothing/ eye protective/ face protection
 Do not eat, drink or smoke when using this product
 Wash contaminated clothing before using

Response: IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
 IF ON SKIN: Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

Section 2. Hazard Identification

Storage: Not applicable.
Disposal: Not applicable.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture
Other means of identification:

Ingredient name	% (w/w)	CAS number
Citric Acid	2-10	77-92-9
Phosphoric Acid	2-10	7664-38-2
Sodium Hydroxide	10-25	1310-73-2

Ranges id listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye Contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.
- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact:** Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion:** Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact:** Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.
- Inhalation:** Move exposed individual to fresh air. Loosen clothing as necessary and position individual in a comfortable position. Seek medical advice if discomfort or irritation persists. If breathing is difficult, give oxygen.
- Skin contact:** Wash affected area with soap and water. Rinse thoroughly. Seek medical attention if irritation, discomfort or vomiting persists.
- Ingestion:** Rinse mouth thoroughly. DO NOT induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists.

Over-exposure signs/symptoms

- Eye contact:** Not applicable
- Inhalation:** Not applicable
- Skin contact:** Not applicable
- Ingestion:** Not applicable

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

Notes to physician: Utilize SDS documentation for treatment

Specific treatments: Not applicable

Protection of

first-aiders: Not applicable

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing

media: If in laboratory setting, follow laboratory fire suppression procedure. Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

Unsuitable

extinguishing media: Not applicable

Specific hazards

arising from the

chemical: Not applicable

Hazardous thermal

decomposition

products: Not applicable

Special protective

actions for

fire-fighters: Move product containers away from fire or keep cool with water spray as a protective measure, where feasible. Use spark-proof tools and explosion proof equipment

Special protective

equipment for

fire-fighters: Use NIOSH - approved respiratory protection/breathing apparatus.

Section 6. Accidental release measures

Personal precautions, protective equipment, and emergency procedures

For non-emergency

personnel: Not available

For emergency

responders: Not available

Environmental

precautions: Prevent from reaching drains, sewers or waterway.

Methods and materials for containment and cleaning up

- Small spill:** If in laboratory setting, follow Chemical Hygiene Plan procedures. Place into properly labeled containers for recovery or disposal. If necessary, use trained response staff/contractor. Collect liquid and dilute with water or basic solution. Decant water to drain with excess water. Absorb with suitable material. Always obey local regulations.
- Large spill:** Small spill protocol applies for big spills.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Wear protective equipment while handling.

Advice on general occupational

hygiene: Avoid contact with eyes, skin and clothing. Wash hands after handling.

Conditions for safe storage, including

incompatibilities: Store away from foodstuffs, in cool, dry, conditions. Store with corrosives

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Sodium Hydroxide	2 mg/m ³
Citric Acid	Not applicable
Phosphoric Acid	1 mg/m ³

Appropriate engineering

controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use.

exposure controls: Not applicable

Individual protection measures

Hygiene measures: The usual precautionary measures are to be adhered to when handling chemicals. Keep away from food, beverages and feed sources. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Do not inhale gases/fumes/dust/vapor/aerosols. Avoid contact with eyes and skin.

Eye/face protection: Safety glasses with side shields or goggles.

Skin protection: The glove material has to be impermeable and resistant to the product being handled. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Respiratory protection: Not requires under normal confusions of use, Use suitable respiratory protective device when high concentration are present. Use suitable respiratory protective device when aerosol or mist is formed.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance:

Physical State: Liquid
Color: Colorless
Odor: Not available.
Odor threshold: Not available.
pH: 2.5
**Melting point/
freezing point:** Not applicable.
**Boiling point, initial
boiling point, and
boiling range:** Not available.
Flash point: Not applicable.
Evaporation rate: Not available.
Flammability: Not available.
**Lower and upper
explosion limit/
flammability limit:** Not available.
Vapor pressure: Not available.
**Relative vapor
density:** Not available.
Relative density: Not available.
Solubility: Miscible in water.
**Partition coefficient:
n-octanol/water** Not applicable.
**Auto-ignition
temperature:** Not available.
**Decomposition
temperature:** Not available.
Viscosity: Not available.

Flow time

(ISO 2431): Not available.

Particle characteristics

Median particle size: Not applicable.

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of

hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid: No specific data.

Incompatible

materials: Reactive or incompatible with the following materials; oxidizing materials, acids and alkalis.

Hazardous

decomposition

products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicology information

Information on toxicology effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Phosphoric Acid	Oral	Rat	1530 mg/m ³	-
Citric Acid	-	-	-	-
Sodium Hydroxide	-	-	-	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
-	-	-	-	-	-

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

**Information on the
likely routes of**

exposure: Not Available

Potential acute health effects

Eye contact: Not Available

Inhalation: Not Available

Skin contact: Not Available

Ingestion: Not Available

Symptoms related to the physical, chemical, and toxicological characteristics

Eye contact: Not Available

Inhalation: Not Available

Skin contact: Not Available

Ingestion: Not Available

Delayed and immediate effects and chronic effects from short- and long-term exposure

Short term exposure

Potential immediate

effects: Not available

Potential delayed

effects: Not available

Long term exposure

Potential immediate

effects: Not available

Potential delayed

effects: Not available

Potential chronic health effects

General: Not available

Carcinogenicity: Not available

Mutagenicity: Not available

Reproductive

toxicity: Not Available

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/m ³)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/m ³)	Inhalation (dusts and mists) (mg/l)
Citric Acid	6730	-	-	-	-
Sodium Hydroxide	-	-	-	-	-
Phosphoric Acid	>1530	-	-	>850	-

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Citric Acid	1516 mg/L	Fish	96h
Sodium Hydroxide	-	-	-
Phosphoric Acid	3-3.25 mg/L EC50>100 mg/L	Bluegill Sunfish Algae	- -

Persistence and degradability

There is no data available.

Product/ingredient name	LogP _{ow}	BCF	Potential
Citric Acid	-1.8	-	Low.
Sodium Hydroxide	-	-	None.
Phosphoric Acid	-	-	-

Mobility in soil

Soil/water partition

coefficient (K_{oc}): Not available.

Other adverse effects: DO NOT release in water: phosphates may result in algae growth.

Section 13. Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should 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 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 empty 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.

Section 14. Transport information

	TGD Classification	DOT Classification (US)	IMGD	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

AERG: Not applicable.

Special precautions

for user: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments:

Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI: The following components are listed: Phosphoric acid, sodium hydroxide and citric acid

CEPA Toxic substances: None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II, & III Chemicals

Not listed

Montreal Protocol

Not listed

Stockholm Convention on Persistent Organic Pollutants

Not listed

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed

UNECE Aarhus Protocol on POPs and Heavy Metals

Not Listed

Inventory list

Canada: All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date

of revision: 07/10/2024

Date of previous

issue: 12/15/2021

Version: 00

Prepared by: Norgen Biotek Corp.

Key to abbreviations: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
Log_{Pow} = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (Marpol = marine pollution)

SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Classification	Justification
SERIOUS EYE DAMAGE - Category 1	Calculation Method
CORROSIVE TO METALS - Category 1	Calculation Method
SKIN CORROSION - Category 1B	Calculation Method
EYE IRRITATION - Category 2A	Calculation Method

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