



# Safety Data Sheet

Cat. # 786-133

Arrest™ Extraction Buffer

Size: 200 Preps





# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 10/11/2016

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Version: 7.1

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : Arrest Extraction Buffer  
Product code : 333A

#### 1.2. Recommended use and restrictions on use

No additional information available

#### 1.3. Supplier

Geno Technology, Inc./ G-Biosciences  
9800 Page Avenue  
Saint Louis, 63132-1429 - United States  
T 800-628-7730 - F 314-991-1504  
[technical@GBiosciences.com](mailto:technical@GBiosciences.com) - [www.GBiosciences.com](http://www.GBiosciences.com)

#### 1.4. Emergency telephone number

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

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

Acute toxicity (oral) Category 4	H302 Harmful if swallowed
Acute toxicity (inhalation:dust,mist) Category 4	H332 Harmful if inhaled
Skin corrosion/irritation Category 1	H314 Causes severe skin burns and eye damage
Hazardous to the aquatic environment - Acute Hazard Category 3	H402 Harmful to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 3	H412 Harmful to aquatic life with long lasting effects

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H302+H332 - Harmful if swallowed or if inhaled  
H314 - Causes severe skin burns and eye damage  
H402 - Harmful to aquatic life  
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (GHS US) : P260 - Do not breathe dust/fume/gas/mist/vapors/spray.  
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P273 - Avoid release to the environment.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a poison center or doctor  
P312 - Call a poison center or doctor if you feel unwell  
P321 - Specific treatment (see supplemental first aid instruction on this label)  
P330 - Rinse mouth.  
P363 - Wash contaminated clothing before reuse.  
P405 - Store locked up.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in

# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

accordance with local, regional, national and/or international regulation

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
guanidine thiocyanate	guanidine hydrothiocyanate / guanidine monothiocyanate / guanidinium rhodanide / guanidinium thiocyanate / guanidium thiocyanate / thiocyanic acid, compd. with guanidine (1:1) / USAF EK-705	(CAS-No.) 593-84-0	10 - 50	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1C, H314 Aquatic Acute 3, H402 Aquatic Chronic 3, H412
citric acid, monohydrate	1,2,3-propanetricarboxylic acid, 2-hydroxy-, monohydrate / 2-hydroxy-1,2,3-propanetricarboxylic acid, monohydrate / 2-hydroxypropane-1,2,3-tricarboxylic acid, monohydrate / beta-hydroxytricarballic acid, monohydrate / beta-hydroxytricarboxylic acid, monohydrate / citric acid, monohydrate / hydroxytricarballic acid, monohydrate / Soerensen's buffer substance	(CAS-No.) 5949-29-1	0.5 - 2	Skin Corr. 1, H314
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether	2-[4-(2,4,4-trimethylpentan-2-yl)phenoxy]ethanol / 4(1,1,3,3-tetramethylbutyl)phenyl polyethylene glycol / poly(oxy-1,2-ethanediy), alpha-(4-(1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy- / polyethylene glycol tert-octylphenoxypolyethoxyethanol / TRITON X-100	(CAS-No.) 9002-93-1	0.5 - 2	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
2-mercaptoethanol	1-ethanol-2-thiol / 1-hydroxy-2-mercaptoethane / 1-mercapto-2-hydroxyethane / 2-hydroxy-1-ethanethiol / 2-hydroxyethanethiol / 2-hydroxyethyl mercaptan / 2-ME / 2-mercapto-1-ethanol / 2-mercaptoethanol / 2-mercaptoethyl alcohol / 2-thioethanol / beta-hydroxyethanethiol / beta-hydroxyethylmercaptan / beta-mercaptoethanol / BME / emery 5791 / ethanol, 2-mercapto- / ethylene glycol, monothio- / ethylene thioglycol / hydroxyethyl mercaptan / mercapto-2 ethanol / METH / monothioethyleneglycol / monothioglycol / thioethylene glycol / thioglycol / thiomonoglycol / USAF EK-4196	(CAS-No.) 60-24-2	0.05 - 0.5	Flam. Liq. 4, H227 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1A, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

- First-aid measures general : Call a physician immediately.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.
- First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a physician immediately.

# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
- First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

### 4.2. Most important symptoms and effects (acute and delayed)

- Symptoms/effects after skin contact : Burns.
- Symptoms/effects after eye contact : Serious damage to eyes.
- Symptoms/effects after ingestion : Burns.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

### 5.2. Specific hazards arising from the chemical

No additional information available

### 5.3. Special protective equipment and precautions for fire-fighters

- Protection during firefighting : 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

#### 6.1.1. For non-emergency personnel

- Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray.

#### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

- For containment : Collect spillage.
- Methods for cleaning up : Take up liquid spill into absorbent material.
- Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray. Wear personal protective equipment.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Arrest Extraction Buffer

No additional information available

#### guanidine thiocyanate (593-84-0)

No additional information available

#### citric acid, monohydrate (5949-29-1)

No additional information available

# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)

No additional information available

### 2-mercaptoethanol (60-24-2)

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.

## 8.3. Individual protection measures/Personal protective equipment

### Hand protection:

Protective gloves

### Eye protection:

Safety glasses

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

Wear respiratory protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Color : No data available  
Odor : No data available  
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 : > 95 °C  
Relative evaporation rate (butyl acetate=1) : No data available  
Flammability (solid, gas) : Not applicable.  
Vapor pressure : No data available  
Relative vapor density at 20 °C : No data available  
Relative density : No data available  
Solubility : No data available  
Log Pow : No data available  
Auto-ignition temperature : No data available  
Decomposition temperature : No data available  
Viscosity, kinematic : No data available  
Viscosity, dynamic : No data available  
Explosion limits : No data available  
Explosive properties : No data available  
Oxidizing properties : No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

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

# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Hazardous decomposition products.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Harmful if inhaled.

ATE US (oral)	749.048 mg/kg body weight
ATE US (dust, mist)	3.174 mg/l/4h

#### guanidine thiocyanate (593-84-0)

LD50 oral rat	354 - 593 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 2000 mg/kg body weight (24 h, Rabbit, Male / female, Experimental value, Skin, 14 day(s))
LC50 inhalation rat (mg/l)	> 0.9 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (dust), 14 day(s))
ATE US (oral)	354 mg/kg body weight
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h

#### citric acid, monohydrate (5949-29-1)

LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
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#### polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)

LD50 oral rat	1800 mg/kg (Rat, Literature study, Oral)
LD50 dermal rabbit	8000 mg/kg (Rabbit, Literature study, Dermal)
ATE US (oral)	1800 mg/kg body weight
ATE US (dermal)	8000 mg/kg body weight

#### 2-mercaptoethanol (60-24-2)

LD50 oral rat	98 - 168 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Weight of evidence, Oral)
LD50 dermal rabbit	112 - 224 mg/kg body weight (Other, 24 h, Rabbit, Male / female, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	2.03 mg/l (Other, 4 h, Rat, Male, Weight of evidence, Inhalation (vapours))
ATE US (oral)	98 mg/kg body weight
ATE US (dermal)	112 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	2.03 mg/l/4h
ATE US (dust, mist)	2.03 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Eye damage, category 1, implicit

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

<b>2-mercaptoethanol (60-24-2)</b>	
Specific target organ toxicity – repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Viscosity, kinematic : No data available

Symptoms/effects after skin contact : Burns.

Symptoms/effects after eye contact : Serious damage to eyes.

Symptoms/effects after ingestion : Burns.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Harmful to aquatic life with long lasting effects. Harmful to aquatic life.

<b>guanidine thiocyanate (593-84-0)</b>	
LC50 fish 1	89.1 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Poecilia reticulata, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	42.4 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)

<b>citric acid, monohydrate (5949-29-1)</b>	
LC50 fish 1	440 - 760 mg/l (Equivalent or similar to OECD 203, 48 h, Leuciscus idus, Static system, Fresh water, Experimental value, Anhydrous form)
EC50 Daphnia 1	1535 mg/l (Other, 24 h, Daphnia magna, Static system, Fresh water, Experimental value, Anhydrous form)

<b>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</b>	
LC50 fish 1	8.9 mg/l (96 h, Pimephales promelas, Literature study)
EC50 Daphnia 1	26 mg/l (48 h, Daphnia magna, Literature study)

<b>2-mercaptoethanol (60-24-2)</b>	
LC50 fish 1	37 mg/l (DIN 38412-15, 96 h, Leuciscus idus, Static system, Fresh water, Experimental value)
EC50 Daphnia 1	0.4 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

#### 12.2. Persistence and degradability

<b>guanidine thiocyanate (593-84-0)</b>	
Persistence and degradability	Not readily biodegradable in water.

<b>citric acid, monohydrate (5949-29-1)</b>	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.481 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	0.665 g O <sub>2</sub> /g substance

<b>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</b>	
Persistence and degradability	Not readily biodegradable in water.
Chemical oxygen demand (COD)	2.19 mg/g
ThOD	2.16 g O <sub>2</sub> /g substance

<b>2-mercaptoethanol (60-24-2)</b>	
Persistence and degradability	Non degradable in the soil. Not readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.105 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.894 g O <sub>2</sub> /g substance

#### 12.3. Bioaccumulative potential

# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<b>guanidine thiocyanate (593-84-0)</b>	
Log Pow	-1.11 (Calculated, EU Method A.8: Partition Coefficient, 25 °C)
Bioaccumulative potential	Not bioaccumulative.
<b>citric acid, monohydrate (5949-29-1)</b>	
Log Pow	-1.8 - -1.55 (Anhydrous form, Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
<b>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</b>	
Log Pow	4.86 (Estimated value)
Bioaccumulative potential	Potential for bioaccumulation ( $4 \geq \text{Log Kow} \leq 5$ ).
<b>2-mercaptoethanol (60-24-2)</b>	
Log Pow	-0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
Bioaccumulative potential	Not bioaccumulative.

### 12.4. Mobility in soil

<b>guanidine thiocyanate (593-84-0)</b>	
Surface tension	Data waiving
Ecology - soil	No (test)data on mobility of the substance available.
<b>citric acid, monohydrate (5949-29-1)</b>	
Ecology - soil	No (test)data on mobility of the substance available.
<b>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</b>	
Ecology - soil	No (test)data on mobility of the substance available.
<b>2-mercaptoethanol (60-24-2)</b>	
Log Koc	0.122 (log Koc, PCKOCWIN v1.66, Calculated value)
Ecology - soil	Highly mobile in soil.

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Waste treatment methods.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Not applicable

### Transportation of Dangerous Goods

Not applicable

### Transport by sea

Not regulated

### Air transport

Not regulated

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

<b>guanidine thiocyanate (593-84-0)</b>
Not listed on the United States TSCA (Toxic Substances Control Act) inventory



# Arrest Extraction Buffer

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<b>citric acid, monohydrate (5949-29-1)</b>	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</b>	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
<b>2-mercaptoethanol (60-24-2)</b>	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	

### 15.2. International regulations

#### CANADA

#### EU-Regulations

#### National regulations

No additional information available

### 15.3. US State regulations

## SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 08/15/2017

Full text of H-phrases:

H227	Combustible liquid
H301	Toxic if swallowed
H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H332	Harmful if inhaled
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

SDS US (GHS HazCom 2012)

*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.*