

MATERIAL SAFETY DATA SHEET

Version: P.02

Section 1 — Chemical Product and Company Identification

Product Identifier Apostle MiniMax™ High Efficiency cfDNA Isolation kit (Standard Edition) Cat #: A17622-10, A17622-50, A17622-250		
Product Use Life science laboratory chemicals. For research use only.	Kit components Proteinase K (R1) Magnetic Nanoparticles (R2) Sample Lysis Buffer (R3) cfDNA Lysis/Binding Solution (R4) cfDNA Wash Solution (R5) cfDNA 2 nd Wash Solution (R6) cfDNA Elution Solution (R7) Note: Only the bottles containing Proteinase K (R1), Sample Lysis Buffer (R3), cfDNA Lysis/Binding Solution (R4), and cfDNA Wash Solution (R5) pose a danger. This safety data sheet describes the danger of the total content of all the kit components.	
Manufacturer's Information R1: Beckman Coulter, Inc. 250 S. Kraemer Blvd, Brea, CA 92821, U.S.A. R2-R7: Apostle, Inc. 1455 Adams Drive STE 2060-1, Menlo Park, CA, 94025, U.S.A.		
Emergency Telephone 650-503-3528		
Email: support@apostlebio.com	Website: http://www.apostlebio.com/	Phone Number : 650-503-3528

SECTION 2 — Hazards Identification

2.1 Hazards Identification of R1

2.1.1 Classification of the substance or mixture

Product Description Mixture

Colorless; Clear; Liquid; Odorless

Classification according to EC 1272/2008 (CLP/GHS)

Skin Irritation Category 2

Respiratory Sensitization Category 1

Specific Target Organ Toxicity Single Exposure Category 3

Eye Irritation Category 2

Classification according to US-OSHA (HCS 29 CFR 1910.1200) and UN GHS

Skin Irritation Category 2

Respiratory Sensitization Category 1

Specific Target Organ Toxicity Single Exposure Category 3

Eye Irritation Category 2

2.1.2 Label Element

Hazardous Ingredients: Proteinase K

Pictogram



Signal Word: Danger

Hazard statement

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation.

Precaution statement

P261 Avoid breathing vapours.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves, protective clothing and eye/face protection.

P284 In case of inadequate ventilation, wear respiratory protection.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P304+P340 IF INHALED: Remove person to fresh air and keep at rest in a position 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.

P312 Call a POISON CENTER or doctor/physician if you feel unwell. P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

P362+P364 Take off contaminated clothing and wash it before use.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/national regulations

Product label will display most significant precautionary statements.

2.1.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

2.2 Hazards Identification of R3, R4, and R5

2.2.1 Classification of the substance or mixture

Product Description Mixture

Colorless; Clear; Liquid; Odorless

Classification according to EC 1272/2008 (CLP/GHS)

Acute toxicity Category 4

Skin corrosion Category 1C

Serious eye damage Category 1

Chronic aquatic toxicity, Category 3

Classification according to US-OSHA (HCS 29 CFR 1910.1200)

Acute toxicity (Oral) Category 4

Skin corrosion Category 1C

Serious eye damage Category 1

Chronic aquatic toxicity, Category 3

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2.2 Label Element

Hazardous Ingredients: Guanidinium thiocyanate

Pictogram



Signal Word: Danger

Hazard statement

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H412 Harmful to aquatic life with long lasting effects.

Precaution statement

P270 Do not eat, drink or smoke when using this product.

P264 Wash skin thoroughly after handling

P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
 P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
 P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

2.2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

SECTION 3 — Composition/Information on Ingredients

Kit Component	Hazardous Ingredients	% by wt.	CAS Number EC Number Index #	Classification
Proteinase K (R1)	Proteinase K	> 90	39450-01-6 254-457-8 Not available	Eye Irrit. 2; H319 Resp. Sens. 1; H334 STOT SE 3; H335; Skin Irrit. 2; H315
Sample Lysis Buffer (R3)	Guanidinium thiocyanate	30-70	593-84-0 209-812-1 Not available	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Aquatic Chronic 3; H412 Skin Corr. 1C; H314
cfDNA Lysis/Binding Solution (R4)	Guanidinium thiocyanate	30-70	593-84-0 209-812-1 Not available	
cfDNA Wash Solution (R5)	Guanidinium thiocyanate	10-40	593-84-0 209-812-1 Not available	

Supplement information: For R3, R4 and R5, contact with acids or bleach liberates toxic gases. DO NOT ADD acids or bleach to any liquid wastes containing these products.

See section 8 for available Occupational exposure limits

See Section 15 for additional regulatory information

SECTION 4 — First Aid Measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

Inhalation

If product is inhaled, move exposed individual to fresh air. If individual is not breathing, begin artificial respiration by trained personnel and obtain medical attention immediately.

Skin contact

In case of skin contact, rinse with plenty of water. Remove contaminated clothing and shoes. If pain or irritation occurs, obtain medical advice/attention.

Eye contact

If product enters eyes, rinse eyes gently with water for 15 minutes or longer, making sure that the eyelid is held open. If pain or irritation occurs, obtain medical advice/attention.

Ingestion

If product is ingested, rinse mouth with water. If irritation or discomfort occurs, obtain medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Causes skin irritation.

Causes serious eye irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

See Section 11 Toxicological Information for more detailed health information.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptoms. No special immediate treatment required.

SECTION 5 — Fire Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray. Carbon dioxide (CO₂). Alcohol-resistant foam. Dry chemical.

5.2 Special hazards arising from the substance or mixture

For R3, R4, and R5: Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

For R3, R4, and R5: Carbon oxides, Sulphur oxides, Nitrogen oxides (NO_x).

5.3 Advice for firefighters

Self-contained breathing apparatus is recommended for firefighters in all chemical fire situations.

5.4 Further information

In the event of fire and/or explosion do not breathe fumes.

SECTION 6 — Accidental Release Measures

6.1 Personal precautions

Observe general safety guidelines for protection; avoid eye and skin contact.

Wear protective gloves, protective clothing and eye/face protection.

6.2 Environmental Precautions

Contain spill to prevent migration.

Prevent spillage from entering drains or surface water.

6.3 Methods and material for containment and cleaning up

Spill and Leak Procedures If the product is solid or lyophilized form, use vacuum or carefully sweep up spilled material and place in container for suitable disposal. Avoid generating dust. If the product is liquid form, absorb spilled material with an appropriate inert, non-flammable absorbent and dispose according to local regulations. Dispose of all waste material in accordance with local guidelines.

6.4 Reference to other sections

Refer sections 8 and 13.

SECTION 7 — Handling and Storage

7.1 Handling

Use good laboratory procedures; avoid eye and skin contact.

7.2 Storage

To maintain product quality, store according to the instructions in the product labeling.

Store away from strong acids, strong bases, strong oxidizers and incompatible materials (section 10).

SECTION 8 — Exposure Controls/Personal Protection

8.1 Engineering measures

Ensure adequate ventilation, especially in confined areas.

8.2 Personal Protective Equipment

Engineering Controls

No special engineering controls are required. Use with good general ventilation.

Respiratory protection

Under normal conditions, the use of this product should not require respiratory protection. If overexposure should occur and ventilation is not adequate to maintain airborne concentrations at acceptable levels, the use of respiratory protection should be evaluated by a qualified professional.

Eye protection

Safety glasses or chemical goggles should be worn to prevent eye contact.

Refer U.S. OSHA 29 CFR 1910.133, European Standard EN166 or appropriate government standards.

Skin protection

Wear impervious gloves such as Nitrile or equivalent and protective clothing.

Refer to U.S. OSHA 29 CFR 1910.138, European Standard EN 374, EN 14605:2005+A1:2009 or appropriate government standards.

SECTION 9 — Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Proteinase K (R1):

Physical State: Liquid

Color: colorless
Odor: odorless
Transparency: Clear
pH: No data available
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: No data available
Flammability (solid, gas) No data available
Vapour pressure No data available
Vapour density No data available
Water solubility: Miscible
Partition coefficient: noctanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available
Explosive properties: No data available
Oxidizing properties: No data available

Sample Lysis Buffer (R3), cfDNA Lysis/Binding Solution (R4), and cfDNA Wash Solution (R5)

Physical State: Liquid
Color: colorless
Odor: odorless
Transparency: Clear
pH: 4 - 6
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: No data available
Flammability (solid, gas) No data available
Vapour pressure No data available
Vapour density No data available
Water solubility: soluble
Partition coefficient: noctanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available
Explosive properties: No data available
Oxidizing properties: No data available

9.2 Other information

None

SECTION 10 — Stability and Reactivity

10.1 Stability

Stable in accordance with recommended storage conditions.

10.2 Reactivity:

For R1: No further relevant information available.

For R3, R4, R5: Possibility of hazardous reactions. Contact with acids or bleach liberates toxic gases. DO NOT ADD acids or bleach to any liquid wastes containing this product.

10.2 Materials to avoid

For R1: To maintain product performance keep away from strong acids, strong bases, strong oxidizers. Avoid exposure to heat and direct sunlight.

For R3, R4, and R5:

Keep away from strong oxidizing agents, strong acids, Cyanide compounds, sodium hypochlorite.

10.3 Hazardous decomposition

For R1: When stored as labeled, no known hazardous decomposition products are formed during the shelf-life of this product.

For R3, R4, and R5: Carbon oxides, Nitrogen Oxides. Sulphur oxides.

SECTION 11 — Toxicological Information

11.1 Information on toxicological effects

R1 contains Proteinase K, CAS # 39450-01-6

Toxicity Data for Hazardous Ingredients

Not applicable

Primary Routes of Exposure

Eye contact, ingestion, inhalation, and skin contact.

Acute Toxicity

Not classified based on available data.

Skin Corrosion/Irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory/skin sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carcinogenicity

No ingredients in this product are listed as carcinogens by ACGIH, IARC, NTP, OSHA or 1272/2008 EC regulation.

Germ cell mutagenicity

Not classified based on available data.

Reproductive Toxicity

Not classified based on available data.

Specific target organ toxicity – single exposure

May cause respiratory irritation.

Specific target organ toxicity – repeated exposure

Not classified based on available data.

Aspiration hazard

Not classified based on available data.

Other Information

No further relevant information available.

R3, R4, and R5 contains Guanidinium thiocyanate CAS # 593-84-0

Acute toxicity

LD50 Oral - Rat - 593 mg/kg

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Mouse - 300 mg/kg

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Other Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12 — Ecological Information

12.1 Ecotoxicity

For R1:

No information available.

For R3, R4, and R5:

Acute: Category 2

Chronic Category 3

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

SECTION 13 — Disposal Considerations

13.1 Waste treatment methods

For R1, chemical residues and remains should be routinely handled as special waste. This must be disposed of in compliance with anti-pollution and other laws of the country concerned. To ensure compliance we recommend that you contact the relevant (local) authorities and/or an approved waste-disposal company for information. Suggested European waste catalogue 18 01 07 - chemicals other than those mentioned in 18 01 06. Dispose in accordance with national, state and local waste regulations.

For R3, R4, and R5, avoid disposing to drain or surface water. Collect spills and waster in closed, leak-proof containers for disposal at local hazardous waste site following local regulation.

SECTION 14 — Transport Information

Transportation of this product is not regulated under ICAO, IATA DGR, IMDG, US DOT, European ADR and RID or Canadian TDG.

UN/ID Number: Not regulated for transportation

Shipping Name: Not regulated for transportation

Hazard Class: Not regulated for transportation

Packing Group: Not regulated for transportation

Environmental Hazards: Not regulated for transportation

Special Precautions for user: None

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

SECTION 15 — Regulatory Information

Component	TSCA
Proteinase K CAS # 39450-01-6 (>90)	Not listed
Guanidinium thiocyanate CAS # 593-84-0 (30-70) (10-40)	Listed

SARA 313 (Section 313, Title III reporting requirements)

No ingredients listed.

CERCLA (The Comprehensive Environmental Response, Compensation, and Liability Act) 40 CFR 302.4

No ingredients listed.

California Proposition 65

No ingredients listed.

Massachusetts Right To Know (RTK) List

No ingredients listed.

New Jersey Dept. of Health Right To Know (RTK) List

Guanidinium thiocyanate

CAS-No.

593-84-0

Pennsylvania Right To Know (RTK) List

Guanidinium thiocyanate

CAS-No.

593-84-0

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer

Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants

Not applicable

Seveso II - Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major accident hazards involving dangerous substances

Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances, REACH 1907/2006 EC - Annex XIV - list of substances subject to authorization

Not applicable

WHMIS

D2B - Toxic materials

Note: A Chemical Safety Assessment has not been carried out.

Some hazardous ingredients listed in Section 15 are below the cutoff limits of 0.1% for Carcinogen, mutagen and reproductive toxin and 1% for other health hazards required for reporting in Section 3

SECTION 16 — Other Information

Manufacture Safety Rating For R1	Flammability: 0 Health: 3 Reactivity with Water: 0 Physical Contact: 3	Code 0=None 1=Slight 2=Caution 3=Severe
Manufacture Safety Rating For R3, R4, and R5	Flammability: 0 Health: 3 Reactivity with acids or bleach: 3 Physical Contact: 3	Code 0=None 1=Slight 2=Caution 3=Severe

Abbreviations and Acronyms

ACGIH - American Conference of Governmental Industrial Hygienists

ADR and RID - European Agreement Concerning The International Carriage Of Dangerous Goods By Road and Rail

CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act

CLP - Classification, Labeling and Packaging

DFGMAK - Republic Germany's maximum exposure limit

GHS - Globally Harmonized System

HCS - Hazard Communication Standard

IARC - International Agency for Research on Cancer

IATA DGR - International Air Transport Association Dangerous Goods Regulation

ICAO - International Civil Aviation Organization

IMDG - International Maritime Dangerous Goods

IOELVs - European Unions' Indicative Occupational Exposure Limit Values

NIOSH - National Institute for Occupational Safety and Health

NTP - National Toxicology Program

OSHA - Occupational Safety and Health Administration

PBT - Persistent bioaccumulative and toxic substances

SARA - Superfund Amendments and Reauthorization Act

TDG - Canadian Transportation Of Dangerous Goods Regulations

TSCA -The Toxic Substances Control Act

UN GHS - United Nations Globally Harmonized System

US DOT - United States Department of Transportation

WHM - Workplace Hazardous Material Information System

vPvB - Very persistent and very bioaccumulative substances

This above information has been prepared for and applies to Apostle MiniMax™ High Efficiency cfDNA Isolation kit (Standard Edition) only. The information in this safety data sheet is acquired by supplier's knowledge, investigation, and professional judgement at the time of preparation. The information shall not be taken as being all inclusive and is to be used as a recommended guide. Apostle Inc. shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein.

End of Safety Data Sheet