

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by Commission Regulation (EU) 2020/878



Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Standard Edition)

Version
4.01

Revision Date (year/month/day): 2024/10/10
Last Revision Date (year/month/day): 2024/11/08

Product name: Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Standard Edition)

Catalog Number: A17622-10 (10 preps)
A17622-50 (50 preps)
A17622-250 (50 preps – Large Volume)

Product Use: Life science laboratory chemicals. For research use only.

Country / Language: IE / EN

This product contains the following components with related SDS, including

- Proteinase K (R1)
- Magnetic Nanoparticles (R2)
- Sample Lysis Buffer (R3)
- cfDNA Lysis/Binding Solution (R4)
- cfDNA Wash Solution (R5)
- cfDNA 2nd Wash Solution (R6)
- cfDNA Elution Solution (R7)

Email:
support@apostlebio.com

Website:
<https://www.apostlebio.com>

Best regards,
The Apostle Team

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by Commission Regulation (EU) 2020/878



Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Standard Edition)

Component(s):

Proteinase K (R1)

Version
4.01

Revision Date (year/month/day): 2024/10/10
Last Revision Date (year/month/day): 2024/11/08

Section 1: Identification of the chemical product and of the company

1.1 Product identifier

Product name: Proteinase K

1.2 Identified uses of the substance or mixture

Identified use: Laboratory chemicals

1.3 Details of the supplier

Company: Roche Diagnostics Deutschland GmbH
Sandhoferstrasse 116
68305 Mannheim
Deutschland

Email address: info.dia-sds@roche.com

Telephone: +49 621-759-0
+49 (0) 621-759-4223 (Responsible Department)

Fax: +49 621-759-2890

1.4 Emergency telephone

Emergency phone: +49 (0) 621-759-2203 (Central Works Security)
Roche Diagnostics GmbH

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation (Category 2) H315: Cause skin irritation

Skin sensitisation (Category 1)	H317: May cause an allergic skin reaction
Eye irritation (Category 2)	H319: Cause serious eye irritation
Respiratory sensitisation (Category 1)	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Specific target organ toxicity - single exposure (Category 3)	H335: May cause respiratory irritation.

2.2 Label elements, including precautionary statements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms:



Single word:

Danger

Hazard statement:

H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.

Precautionary statements:

Prevention:

P261 Avoid breathing mist or vapours.
P280 Wear protective gloves / protective clothing / eye protection / face protection/ hearing protection.
P284 Wear respiratory protection

Response:

P304 + P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER / doctor.

Hazardous components which must be listed on the label:

Proteinase, Tritirachium album serine

2.3 Other hazards:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0,1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0,1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0,1% or higher.

Section 3: Composition/information on ingredients

Components

Kit Component	Hazardous Ingredients (chemical name)	CAS-No. EC-No. Index-No. Registration number	Classification	% by wt.
Proteinase K (R1)	Proteinase, Tritirachium album serine	39450-01-6 254-457-8 647-014-00-9 Not available	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335 (Respiratory system)	>= 1,0 - < 10,0

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measurements

General advice:

Move out of the dangerous area.
Show this safety data sheet to the doctor in attendance.
Consult a physician.

If inhaled:

If unconscious, place in a recovery position and seek medical advice.
Keep the respiratory tract clear.
If symptoms persist, call a physician.

In case of skin contact:

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
If symptoms persist, call a physician.

In case of eye contact:

Remove contact lenses.
Protect the unharmed eye.
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed:

If accidentally swallowed, obtain immediate medical attention.
Rinse mouth with water.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:

No information available.

Risks:

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

4.3 Indication of any immediate medical attention and special treatment needed

Treatment:

No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting:

Exposure to decomposition products may be a hazard to health.

Hazardous combustion products:

No data available

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

Further information:

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:

Use personal protective equipment.

Ensure adequate ventilation.

Avoid breathing dust / fume / gas / mist / vapours / spray.

6.2 Environmental precautions

Environmental precautions:

Prevent products from entering drains.

Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

6.4 References to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling:

Avoid formation of aerosol.

Do not breathe vapours / dust.

Avoid exposure - obtain special instructions before use.

Avoid contact with skin and eyes.

For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the application area.

Provide sufficient air exchange and/or exhaust in work rooms.

Dispose of rinse water in accordance with local and national regulations.

Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion:

Normal measures for preventive fire protection.

Hygiene measures:

Keep away from food and drink. Wash hands before breaks and at the end of workday. Ensure adequate ventilation, especially in confined areas. Avoid contact with the skin and the eyes.

When using, do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions:

Tightly closed. Dry.

Keep locked up or in an area accessible only to qualified or authorized persons.

Storage stability:

Recommended storage temperature 2-30°C.

No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s):

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Personal protective equipment

Eye/face protection: Tightly fitting safety goggles.
Do not wear contact lenses.

Hand protection

Material: Protective gloves.

Remarks: The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Skin and body protection: Choose body protection according to the amount and concentration of the dangerous substance at the workplace.
Footwear protecting against chemicals

Respiratory protection: In the case of vapour formation use a respirator with an approved filter.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	liquid
Color:	colorless
Odor:	none
Odor Threshold:	No data available
pH:	6,5 - 8,5 Concentration: 100 %
Melting point/range:	No data available
Boiling point/boiling range:	No data available
Flash point:	does not flash
Evaporation rate:	No data available
Burning rate:	No data available
Upper explosion limit / Upper flammability limit:	No data available
Lower explosion limit / Lower flammability limit:	No data available

Vapour pressure:	No data available
Relative vapour density:	No data available
Relative density:	No data available
Density:	No data available
Water solubility:	No data available
Solubility in other solvents:	soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not determined
Decomposition temperature:	No data available
Viscosity, dynamic:	No data available
Viscosity, kinematic:	No data available
Explosive properties:	Not applicable
Oxidizing properties:	No data available

9.2 Information on basic physical and chemical properties

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Hazardous reactions:

Stable under recommended storage conditions.

Hazardous decomposition products formed under fire conditions.

Keep away from oxidizing agents, and acidic or alkaline products.

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

Symptoms: Irritations of mucous membranes in the mouth, pharynx, esophagus and gastrointestinal tract.

Symptoms:

Possible symptoms: mucosal irritations, Cough, Shortness of breath

Possible damages: damage of respiratory tract

Dermal: No data available

Skin corrosion/irritation:

Remarks: Mixture causes skin irritation.

Serious eye damage/eye irritation:

Remarks: Mixture causes serious eye irritation.

Respiratory or skin sensitisation:

Remarks: Mixture may cause allergy or asthma symptoms or breathing difficulties if inhaled.
Mixture may cause an allergic skin reaction.

11.2 Information on other hazards

Endocrine disrupting properties:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0,1% or higher.

Further information:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

No data available

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.

12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product:

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging:

Dispose unused product. Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA_P	Not regulated as a dangerous good

14.2 UN proper shipping name

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA_P	Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA_P	Not regulated as a dangerous good

14.4 Packing group

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA (Cargo)	Not regulated as a dangerous good
IATA_P (Passenger)	Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Remarks: Not classified as dangerous in the meaning of transport regulations.
Refer to protective measures listed in sections 7 and 8.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for products as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or

mixture

Relevant EU provisions transposed through retained EU law

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Conditions of restriction for the following entries should be considered: Number on list 3
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	Not applicable
REACH - List of substances subject to authorization (Annex XIV)	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.	Not applicable

15.2 Chemical safety assessment

No data available

SECTION 16: Other information

Full text of abbreviations

Eye Irrit. - Eye irritation
Resp. Sens. - Respiratory sensitisation
Skin Irrit. - Skin irritation
STOT SE - Specific target organ toxicity - single exposure

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
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ASTM - American Society for the Testing of Materials
CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act
CLP - Classification, Labelling and Packaging
CMR - Carcinogen, Mutagen or Reproductive Toxicant
DIN - Standard of the German Institute for Standardisation
DFGMAK - Republic Germany's maximum exposure limit
DSL - Domestic Substances List (Canada)
ECHA - European Chemicals Agency
EC-Number - European Community number
ECx - Concentration associated with x% response

ELx - Loading rate associated with x% response
EmS - Emergency Schedule
ENCS - Existing and New Chemical Substances (Japan)
ErCx - Concentration associated with x% growth rate response
GHS - Globally Harmonized System
GLP - Good Laboratory Practice
HCS - Hazard Communication Standard
IARC - International Agency for Research on Cancer
IATA DGR - International Air Transport Association Dangerous Goods Regulation
IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 - Half maximal inhibitory concentration
ICAO - International Civil Aviation Organization
IECSC - Inventory of Existing Chemical Substances in China
IMDG - International Maritime Dangerous Goods
IMO - International Maritime Organization
IOELVs - European Unions' Indicative Occupational Exposure Limit Values
ISHL - Industrial Safety and Health Law (Japan)
ISO - International Organisation for Standardization
KECI - Korea Existing Chemicals Inventory
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL - International Convention for the Prevention of Pollution from Ships
NIOSH - National Institute for Occupational Safety and Health
n.o.s. - Not Otherwise Specified
NO(A)EC - No Observed (Adverse) Effect Concentration
NO(A)EL - No Observed (Adverse) Effect Level
NOELR - No Observable Effect Loading Rate
NTP - National Toxicology Program
NZIoC - New Zealand Inventory of Chemicals
OECD - Organization for Economic Co-operation and Development
OPPTS - Office of Chemical Safety and Pollution Prevention
OSHA - Occupational Safety and Health Administration
PBT - Persistent bioaccumulative and toxic substances
(Q)SAR - (Quantitative) Structure Activity Relationship
REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
SADT - Self-Accelerating Decomposition Temperature
SARA - Superfund Amendments and Reauthorization Act
SDS - Safety Data Sheet; SVHC - Substance of very high concern
TCSI - Taiwan Chemical Substance Inventory
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
UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods
WHM - Workplace Hazardous Material Information System
vPvB - Very persistent and very bioaccumulative substances

Classification of the mixture:

Classification procedure:

Resp. Sens. 1 – H334

Calculation method

This information provided in this safety data sheet is correct to the best of our 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.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by Commission Regulation (EU) 2020/878



Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Standard Edition)

Component(s):

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

Version
4.01

Revision Date (year/month/day): 2024/10/10
Last Revision Date (year/month/day): 2024/11/08

Section 1: Identification of the chemical product and of the company

1.1 Product identifier

Product name(s):
Sample Lysis Buffer
cfDNA Lysis/Binding Solution
cfDNA Wash Solution

1.2 Identified uses of the substance or mixture

Identified use: Laboratory chemicals

1.3 Details of the supplier

Company: Apostle Inc.
3589 Nevada St, Pleasanton, CA 94566
U.S.A.
Email address: support@apostlebio.com
Telephone: +1 888-305-3218
+1 650-503-3528 (responsible department)

1.4 Emergency telephone

Emergency phone: +1 650-503-3528

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, oral (Category 4)	H302: Harmful if swallowed.
Acute toxicity, Dermal (Category 4)	H312: Harmful if inhaled
Skin corrosion (Category 1C)	H314: Causes severe skin burns and eye damage
Serious eye damage (Category 1)	H318: Causes serious eye damage
Acute toxicity, Inhalation (Category 4)	H332: Harmful in contact with skin
Short-term (acute) aquatic hazard (Category 3)	H402: Harmful to aquatic life
Long-term (chronic) aquatic hazard (Category 3)	H412: Harmful to aquatic life with long lasting effects

2.2 Label elements, including precautionary statements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms:



Single word:

Danger

Hazard statement:

H302 + H312 + H332: Harmful if swallowed, in contact with skin or if inhaled.

H314: Causes severe skin burns and eye damage.

H412: Harmful to aquatic life with long lasting effects.

Precautionary statements:

P260: Do not breathe dust.

P264: Wash skin 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 + P330: If swallowed: call a POISON CENTER / doctor if you feel unwell. Rinse mouth.

P301 + P330 + P331: If swallowed: rinse mouth. Do not induce vomiting.

P303 + P361 + P310: If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with water / shower.

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.

P310: Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER / doctor.

P363: Wash contaminated clothing before reuse.

P405: Store locked up.

P501: Dispose of contents / container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

Guanidinium thiocyanate

2.3 Other hazards:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0,1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0,1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0,1% or higher.

Section 3: Composition/information on ingredients

Components

Kit Component	Hazardous Ingredients (chemical name)	CAS-No. EC-No. Index-No. Registration number	Classification	% by wt.
Sample Lysis Buffer	Guanidinium thiocyanate	593-84-0 209-812-1 615-004-00-3 01-2120735072-65-0000	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1C; H314 Eye Dam. 1; H318 Acute Tox. 4; H332 Aquatic Acute 3; H402 Aquatic Chronic 3; H412	>=30 - <=70
cfDNA Lysis/Binding Solution	Guanidinium thiocyanate	593-84-0 209-812-1 615-004-00-3 01-2120735072-65-0000	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1C; H314 Eye Dam. 1; H318 Acute Tox. 4; H332 Aquatic Acute 3; H402 Aquatic Chronic 3; H412	>=30 - <=70
cfDNA Wash Solution	Guanidinium thiocyanate	593-84-0 209-812-1 615-004-00-3 01-2120735072-65-0000	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1C; H314 Eye Dam. 1; H318 Acute Tox. 4; H332 Aquatic Acute 3; H402 Aquatic Chronic 3; H412	>=10 - <=40

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measurements

General advice:

Move out of the dangerous area.
Show this safety data sheet to the doctor in attendance.
Consult a physician.

If inhaled:

If unconscious, place in a recovery position and seek medical advice.
Keep the respiratory tract clear.
If symptoms persist, call a physician.

In case of skin contact:

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

In case of eye contact:

Remove contact lenses.
Protect unharmed eye.
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed:

If accidentally swallowed, obtain immediate medical attention.
Rinse mouth with water.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:

No information available.

Risks:

Causes serious eye damage.
Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment:

No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting:

Exposure to decomposition products may be a hazard to health.

Hazardous combustion products:

Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Sulphur oxides.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

Further information:

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:

Use personal protective equipment.

Avoid breathing dust / fume / gas / mist / vapours / spray.

6.2 Environmental precautions

Environmental precautions:

Prevent products from entering drains.

Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

Unsuitable cleaning agents sodium hypochlorite.

6.4 References to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling:

Do not breathe vapours/dust.

Avoid contact with skin and eyes.

For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the application area.

Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion:

Normal measures for preventive fire protection.

Hygiene measures:

Keep away from food and drink. Wash hands before breaks and at the end of workday. Ensure adequate ventilation, especially in confined areas. Avoid contact with the skin and the eyes. When using, do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities**Storage conditions:**

Keep the container tightly closed in a dry and well-ventilated place.

Storage stability:

Do not store near acids.

No decomposition if stored and applied as directed.

7.3 Specific end use(s)**Specific use(s):**

Laboratory chemicals

SECTION 8: Exposure controls/personal protection**8.1 Control parameters**

Contains no substances with occupational exposure limit values.

8.2 Exposure controls**Personal protective equipment**

Eye/face protection:	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection:	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection:	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirators if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended Filter type:	Particulates filter conforming to EN 143.
Hygiene Measures:	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Form: liquid
Color:	clear, light yellow
Odor:	characteristic
Odor Threshold:	No data available
pH:	Sample Lysis Buffer: 3,5-5,5 cfDNA Lysis/Binding Solution: 3,5-5,5 cfDNA Wash Solution: 4-6
Melting point/range:	No data available
Boiling point/boiling range:	No data available
Flash point:	does not flash
Evaporation rate:	No data available
Burning rate:	No data available
Upper explosion limit / Upper flammability limit:	No data available
Lower explosion limit / Lower flammability limit:	No data available
Vapour pressure:	No data available
Relative vapour density:	No data available
Relative density:	No data available
Density:	No data available
Water solubility:	No data available
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not determined
Decomposition temperature:	No data available
Viscosity:	No data available
Explosive properties:	Not classified as explosive.
Oxidizing properties:	No data available

9.2 Information on basic physical and chemical properties

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Contact with acids liberates very toxic gas.

10.2 Chemical stability

Light sensitive.

10.3 Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists with the following substances: Acids.

10.4 Conditions to avoid

Avoid dust formation. Incompatible products. Exposure to light. Excess heat.

10.5 Incompatible materials

Acids, Strong oxidizing agents.

10.6 Hazardous decomposition products

Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Sulphur oxides.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

Harmful if swallowed.

LD50 Oral (Rat, female): 593 mg/kg. Method: OECD Test Guideline 401

Symptoms: Possible damages: Nausea, Vomiting

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation:

Skin (Rabbit)

Result: Corrosive after 1 to 4 hours of exposure. Method: OECD Test Guideline 404

Serious eye damage/eye irritation:

Remarks: Causes serious eye damage.

Respiratory or skin sensitisation:

No data available.

11.2 Information on other hazards

Endocrine disrupting properties:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0,1% or higher.

Further information:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

No data available

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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0,1% or higher.

12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product:

The product should not be allowed to enter drains, water courses or the soil.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging:

Dispose unused product. Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number

ADN	UN 1760
ADR	UN 1760
RID	UN 1760
IMDG	UN 1760
IATA_P	UN 1760

14.2 UN proper shipping name

ADN	Corrosive liquid, N.O.S. (guanidine thiocyanate)
ADR	Corrosive liquid, N.O.S. (guanidine thiocyanate)
RID	Corrosive liquid, N.O.S. (guanidine thiocyanate)
IMDG	Corrosive liquid, N.O.S. (guanidine thiocyanate)
IATA_P	Corrosive liquid, N.O.S. (guanidine thiocyanate)

14.3 Transport hazard class(es)

ADN	Class 8
ADR	Class 8
RID	Class 8
IMDG	Class 8
IATA_P	Class 8

14.4 Packing group

ADN	Packing group: III Classification code: C9 Hazard Identification Number: 80 Labels: 8
ADR	Packing group: III Classification code: C9 Hazard Identification Number: 80 Labels: 8

	Tunnel restriction code: (E)
RID	Packing group: III Classification code: C9 Hazard Identification Number: 80 Labels: 8
IMDG	Packing group: III Labels: 8 EmS code: F-A, S-B
IATA (Cargo)	Packing instruction (cargo aircraft): 856 Packing instruction (LQ): Y841 Packing group: III Labels: Corrosive
IATA_P (Passenger)	Packing instruction (cargo aircraft): 852 Packing instruction (LQ): Y841 Packing group: III Labels: Corrosive

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.
Refer to protective measures listed in sections 7 and 8.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for products as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant EU provisions transposed through retained EU law

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Conditions of restriction for the following entries should be considered: Number on list 3
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	Not applicable
REACH - List of substances subject to authorization (Annex XIV)	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.	Not applicable

15.2 Chemical safety assessment

No data available

SECTION 16: Other information

Full text of abbreviations

Acute Tox. - Acute toxicity
Aquatic Chronic - Long-term (chronic) aquatic hazard

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
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ASTM - American Society for the Testing of Materials
CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act
CLP - Classification, Labelling and Packaging
CMR - Carcinogen, Mutagen or Reproductive Toxicant
DIN - Standard of the German Institute for Standardisation
DFGMAK - Republic Germany's maximum exposure limit
DSL - Domestic Substances List (Canada)
ECHA - European Chemicals Agency
EC-Number - European Community number
ECx - Concentration associated with x% response
ELx - Loading rate associated with x% response
EmS - Emergency Schedule
ENCS - Existing and New Chemical Substances (Japan)
ErCx - Concentration associated with x% growth rate response
GHS - Globally Harmonized System
GLP - Good Laboratory Practice
HCS - Hazard Communication Standard
IARC - International Agency for Research on Cancer
IATA DGR - International Air Transport Association Dangerous Goods Regulation
IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 - Half maximal inhibitory concentration
ICAO - International Civil Aviation Organization
IECSC - Inventory of Existing Chemical Substances in China
IMDG - International Maritime Dangerous Goods

IMO - International Maritime Organization
IOELVs - European Unions' Indicative Occupational Exposure Limit Values
ISHL - Industrial Safety and Health Law (Japan)
ISO - International Organisation for Standardization
KECI - Korea Existing Chemicals Inventory
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL - International Convention for the Prevention of Pollution from Ships
NIOSH - National Institute for Occupational Safety and Health
n.o.s. - Not Otherwise Specified
NO(A)EC - No Observed (Adverse) Effect Concentration
NO(A)EL - No Observed (Adverse) Effect Level
NOELR - No Observable Effect Loading Rate
NTP - National Toxicology Program
NZIoC - New Zealand Inventory of Chemicals
OECD - Organization for Economic Co-operation and Development
OPPTS - Office of Chemical Safety and Pollution Prevention
OSHA - Occupational Safety and Health Administration
PBT - Persistent bioaccumulative and toxic substances
(Q)SAR - (Quantitative) Structure Activity Relationship
REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
SADT - Self-Accelerating Decomposition Temperature
SARA - Superfund Amendments and Reauthorization Act
SDS - Safety Data Sheet; **SVHC** - Substance of very high concern
TCSI - Taiwan Chemical Substance Inventory
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
UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods
WHM - Workplace Hazardous Material Information System
vPvB - Very persistent and very bioaccumulative substances

Classification of the mixture:

Acute Tox. 4 – H302
 Aquatic Chronic 3 – H412

Classification procedure:

Calculation method
 Calculation method

This information provided in this safety data sheet is correct to the best of our 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.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by Commission Regulation (EU) 2020/878



Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Standard Edition)

Component(s)

Magnetic Nanoparticles (R2)
cfDNA 2nd Wash Solution (R5)
cfDNA Elution Solution (R7)

Version
4.01

Revision Date (year/month/day): 2024/10/10
Last Revision Date (year/month/day): 2024/11/08

Section 1: Identification of the chemical product and of the company

1.1 Product identifier

Product name(s): Magnetic Nanoparticles
cfDNA 2nd Wash Solution
cfDNA Elution Solution

1.2 Identified uses of the substance or mixture

Identified use: Laboratory chemicals

1.3 Details of the supplier

Company: Apostle Inc.
3589 Nevada St, Pleasanton, CA 94566
U.S.A.
Email address: support@apostlebio.com
Telephone: +1 888-305-3218
+1 650-503-3528 (responsible department)

1.4 Emergency telephone

Emergency phone: +1 650-503-3528

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements, including precautionary statements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.3 Other hazards:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0,1% or higher.

Section 3: Composition/information on ingredients

Components

Kit Component	Hazardous Ingredients (chemical name)
Magnetic Nanoparticles	No hazardous ingredients
cfDNA 2 nd Wash Solution	No hazardous ingredients
cfDNA Elution Solution	No hazardous ingredients

SECTION 4: First aid measures

4.1 Description of first aid measurements

General advice:

Show this safety data sheet to the doctor in attendance.

If inhaled:

Not applicable.

Move to fresh air.

If symptoms persist, call a physician.

In case of skin contact:

Not applicable.

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

If symptoms persist, call a physician.

In case of eye contact:

Not applicable.

Remove contact lenses.

Protect unharmed eye.

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed:

Not applicable.

If accidentally swallowed, obtain immediate medical attention.

Rinse mouth with water.

Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:

No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment:

No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting:

Exposure to decomposition products may be a hazard to health.

Hazardous combustion products:

No hazardous combustion products are known.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

Further information:

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:

Use personal protective equipment.
Avoid breathing dust / fume / gas / mist / vapours / spray.

6.2 Environmental precautions

Environmental precautions:

Do not allow uncontrolled discharge of product into the environment.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:

Keep in suitable, closed containers for disposal.

6.4 References to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling:

For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion:

Normal measures for preventive fire protection.

Hygiene measures:

Keep away from food and drink. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions:

No decomposition if stored and applied as directed.

Storage stability:

No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s):

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Personal protective equipment

Eye/face protection:	Safety glasses.
Skin and body protection:	Wear appropriate protective gloves and clothing to prevent skin exposure.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Magnetic nanoparticles: suspension cfDNA 2 nd wash buffer: liquid cfDNA elution buffer: liquid
Color:	Magnetic nanoparticles: brown cfDNA 2 nd wash buffer: colorless cfDNA elution buffer: colorless
Odor:	Odorless
Odor Threshold:	Not applicable
pH:	Magnetic nanoparticles: 7-9 cfDNA 2 nd wash buffer: 6-8 cfDNA elution buffer: 8-10
Melting point/range:	No data available
Boiling point/boiling range:	No data available
Flash point:	does not flash
Evaporation rate:	No data available
Burning rate:	No data available
Upper explosion limit / Upper flammability limit:	Not applicable
Lower explosion limit / Lower flammability limit:	Not applicable
Vapour pressure:	No data available
Relative vapour density:	No data available
Relative density:	No data available
Density:	No data available
Water solubility:	No data available
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	does not ignite

Decomposition temperature:	No data available
Viscosity:	No data available
Explosive properties:	Not classified as explosive.
Oxidising properties:	No data available

9.2 Information on basic physical and chemical properties

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Stable under recommended storage conditions.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materials

No data available.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

Not classified based on available information.

Skin corrosion/irritation:

Not classified based on available information.

Serious eye damage/eye irritation:

Not classified based on available information.

Respiratory or skin sensitisation:

Not classified based on available information.

11.2 Information on other hazards**Endocrine disrupting properties:**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0,1% or higher.

Further information:

Remarks: No data available

SECTION 12: Ecological information**12.1 Toxicity**

No data available

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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0,1% or higher.

12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product:

Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging:

Dispose unused product. Do not re-use empty containers.

Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

14.1 UN number

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA_P	Not regulated as a dangerous good

14.2 UN proper shipping name

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA_P	Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA_P	Not regulated as a dangerous good

14.4 Packing group

ADN	Not regulated as a dangerous good
ADR	Not regulated as a dangerous good
RID	Not regulated as a dangerous good
IMDG	Not regulated as a dangerous good
IATA (Cargo)	Not regulated as a dangerous good
IATA_P (Passenger)	Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not classified as dangerous in the meaning of transport regulations.
Refer to protective measures listed in sections 7 and 8.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for products as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant EU provisions transposed through retained EU law

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	Not applicable
REACH - List of substances subject to authorization (Annex XIV)	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.	Not applicable

15.2 Chemical safety assessment

No data available

SECTION 16: Other information

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
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ASTM - American Society for the Testing of Materials
CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act
CLP - Classification, Labelling and Packaging
CMR - Carcinogen, Mutagen or Reproductive Toxicant
DIN - Standard of the German Institute for Standardisation
DFGMAK - Republic Germany's maximum exposure limit
DSL - Domestic Substances List (Canada)
ECHA - European Chemicals Agency
EC-Number - European Community number
EC_x - Concentration associated with x% response
EL_x - Loading rate associated with x% response
EmS - Emergency Schedule
ENCS - Existing and New Chemical Substances (Japan)
ErC_x - Concentration associated with x% growth rate response
GHS - Globally Harmonized System
GLP - Good Laboratory Practice
HCS - Hazard Communication Standard
IARC - International Agency for Research on Cancer
IATA DGR - International Air Transport Association Dangerous Goods Regulation
IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC₅₀ - Half maximal inhibitory concentration
ICAO - International Civil Aviation Organization
IECSC - Inventory of Existing Chemical Substances in China
IMDG - International Maritime Dangerous Goods
IMO - International Maritime Organization
IOELVs - European Unions' Indicative Occupational Exposure Limit Values
ISHL - Industrial Safety and Health Law (Japan)
ISO - International Organisation for Standardization
KECI - Korea Existing Chemicals Inventory
LC₅₀ - Lethal Concentration to 50 % of a test population
LD₅₀ - Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL - International Convention for the Prevention of Pollution from Ships
NIOSH - National Institute for Occupational Safety and Health
n.o.s. - Not Otherwise Specified
NO(A)EC - No Observed (Adverse) Effect Concentration
NO(A)EL - No Observed (Adverse) Effect Level
NOELR - No Observable Effect Loading Rate
NTP - National Toxicology Program
NZIoC - New Zealand Inventory of Chemicals
OECD - Organization for Economic Co-operation and Development
OPPTS - Office of Chemical Safety and Pollution Prevention
OSHA - Occupational Safety and Health Administration
PBT - Persistent bioaccumulative and toxic substances
(Q)SAR - (Quantitative) Structure Activity Relationship
REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
SADT - Self-Accelerating Decomposition Temperature

SARA - Superfund Amendments and Reauthorization Act
SDS - Safety Data Sheet; **SVHC** - Substance of very high concern
TCSI - Taiwan Chemical Substance Inventory
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
UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods
WHM - Workplace Hazardous Material Information System
vPvB - Very persistent and very bioaccumulative substances

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