

**** MATERIAL SAFETY DATA SHEET ****

1. Identification of substance

Production details

Trade name: Binding Buffer

Manufacturer/Supplier:

Taiwan Advanced Nanotech Inc.

No.2, Aly. 12, Ln. 81, Longshou St., Taoyuan Dist., Taoyuan City 330, Taiwan (R.O.C.)

Tel.:886-3-3607555

MSDS-No.: BB-M61EA

2. Composition/Data on components

Chemical characterization

Description: Liquid (Proprietary Compound Mixture)

Dangerous components: Void

3. Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless. Flammable liquid. Causes severe eye irritation. May cause blindness if swallowed. May be fatal if swallowed. May cause skin irritation. May cause central nervous system depression. May cause liver and kidney damage. May cause reproductive and fetal effects. May be absorbed through intact skin. May form explosive peroxides.

Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects

Eye: Vapors may cause eye irritation.

Skin: May cause skin irritation.

Ingestion: May be fatal or cause blindness if swallowed.

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation.

4. First aid measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid.

Inhalation: Get medical aid immediately. Remove from exposure to fresh air



immediately.

Notes to Physician: Treat symptomatically and supportively.

5. Fire fighting measures

General Information: Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use water spray to cool fire-exposed containers.

6. Accidental release measures

General Information: Use proper personal protective equipment.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. A vapor suppressing foam may be used to reduce vapors.

7. Handling and storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. Exposure controls and personal protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Not required.

Protection of hands:

Protective gloves.

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further markers of quality and varies from manufacturer to manufacturer.

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.



Eye protection:

Tightly sealed goggles.

9. Physical and chemical properties**General Information**

Form: Fluid

Color: Colorless

Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100°C (212°F)

Flash point: Not applicable.

Auto igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Density at 20°C (68°F): 1.0 g/cm³

Solubility in / Miscibility with water: Fully miscible.

pH-value at 20°C (68°F): 9.0

10. Stability and reactivity:**Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

Dangerous reactions: Reacts with acids, alkalis and oxidizing agents.

Dangerous products of decomposition: Danger of toxic pyrolysis products.

11. Toxicological information**Acute toxicity:****Primary irritant effect:**

On the skin: Irritant to skin and mucous membranes.

On the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

The product is not subject to classification according to internally calculation methods for preparations.

12. Ecological information

Ecotoxicity: Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified) ria: Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test 250 ppm/6hr/goldfish/lethal/fresh water

Environmental: Ethanol: In water, will volatilize and probably degrade.

Physical: No information available.

Other: Not expected to bioconcentrate in fish.



13. Disposal considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. DOT regulations:

Land transport ADR/RID (Cross-border):

ADR/RID class: No classification assigned.

Maritime transport IMDG:

IMDG class: No classification assigned.

Marine pollutant: No

Air transport ICAO-TI / IATA-DGR:

ICAO / IATA class: Not restricted by IATA.

15. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and establish relationship.



Taiwan
Advanced
Nanotech

**** MATERIAL SAFETY DATA SHEET ****

1. Identification of substance

Production details

Trade name: Washing Buffer 1

Manufacturer/Supplier:

Taiwan Advanced Nanotech Inc.

No.2, Aly. 12, Ln. 81, Longshou St., Taoyuan Dist., Taoyuan City 330, Taiwan (R.O.C.)

Tel.:886-3-3607555

MSDS-No.: WB1-M61EA

2. Composition/Data on components

Chemical characterization

Description: Liquid (Proprietary Compound Mixture)

Dangerous components:

593-84-0 guanidinium thiocyanate

3. Hazards Identification

Hazard description:

Harmful

Information pertaining to particular dangers for man and environment:

The product has to be labeled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Harmful by inhalation, in contact with skin and if swallowed.

Irritating to eyes and skin.

Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4. First and measures

General information:

Symptoms of poisoning may be even occur several hours; therefore medical observation for at least 48 hours after the accident.

After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

After eye contact:



Taiwan
Advanced
Nanotech

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing:

Immediately call a doctor.

5. Fire fighting measures

Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires spray or alcohol resistant foam.

Protective equipment:

Mount respiratory protective device.

6. Accidental release measures

Person-related safety precautions:

Ensure adequate ventilation.

Measures for environmental protection:

Do not allow to enter sewers/ surface or ground water.

Measures for cleaning/ collecting:

Ensure adequate ventilation.

Dispose contaminated material as according to item 13.

7. Handling and storage

Handling:

Information for safe handling:

Keep receptacles tightly sealed.

Information about protection against explosions and fires:

No special measures required.

Storage:

Requirements to be met by storerooms and receptacles:

No special measures required.

Information about storage in one common storage facility:

Not required.

Further information about storage conditions:

Keep receptacle tightly sealed.

8. Exposure controls and personal protection

Additional information about design of technical systems:

No further data; see item 7.

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.



Avoid contact with the eyes and skin.

Breathing equipment:

Not required.

Protection of hands:

Protective gloves.

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further markers of quality and varies from manufacturer to manufacturer.

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles.

9. Physical and chemical properties

General Information

Form: Fluid

Color: Colorless

Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

Flash point: Not applicable.

Auto igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Density: No data available

Solubility in / Miscibility with water: Fully miscible.

10. Stability and reactivity:

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

Dangerous reactions:

React with acids, alkalis and oxidizing agents.

Dangerous products of decomposition:

Carbon monoxide and carbon dioxide.

Nitrogen oxides (NO_x)

Sulphur oxides (SO_x)

11. Toxicological information

Acute toxicity:

Primary irritant effect:

Taiwan
Advanced
Nanotech



On the skin: Irritant to skin and mucous membranes.

On the eye:

Irritating effect.

Sensitization:

No sensitizing effects known.

Additional toxicological information:

The product shows the following dangers according to internally calculation methods for preparations.

Harmful

Irritant

12. Ecological information

General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13. Disposal considerations

Product:

Recommendation:

Do not dispose of together with household garbage. Do not allow products to reach sewage system.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14. DOT regulations:

Land transport ADR/RID (Cross-border):

ADR/RID class: No classification assigned.

Maritime transport IMDG:

IMDG class: No classification assigned.

Marine pollutant: No

Air transport ICAO-TI / IATA-DGR:

ICAO / IATA class: Not restricted by IATA.

15. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and establish relationship.



Taiwan
Advanced
Nanotech

**** MATERIAL SAFETY DATA SHEET ****

1. Identification of substance

Production details

Trade name: Magnetic Beads

Manufacturer/Supplier:

Taiwan Advanced Nanotech Inc.

No.2, Aly. 12, Ln. 81, Longshou St., Taoyuan Dist., Taoyuan City 330, Taiwan (R.O.C.)

Tel.:886-3-3607555

MSDS-No.: B607

2. Composition/Data on components

Chemical characterization

Description: Liquid (Proprietary Compound Mixture)

Dangerous components: Void

3. Hazards Identification

Hazard description: Not applicable.

Information pertaining to particular dangers for man and environment: Not applicable.

NFPA rating (scale 0-4)

Health = 0

Fire = 0

Reactivity = 0

WHMIS-rating (scale 0-4)

Health = 0

Fire = 0

Reactivity = 0

4. First and measures

After inhalation: Supply fresh air; consult doctor in case of complaints.

After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

After skin contact: Immediately wash with water and soap and rinse thoroughly..

After swallowing: Immediately call a doctor.

5. Fire fighting measures

Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires spray or alcohol resistant foam.

Protective equipment: Do not inhale explosion gases or combustion gases.



Advanced
Nanotech

6. Accidental release measures

Person-related safety precautions: Ensure adequate ventilation.

Measures for environmental protection:

Do not allow to enter sewers/ surface or ground water.

Measures for cleaning/ collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

7. Handling and storage

Handling:

Information for safe handling: Keep receptacles tightly sealed.

Information about protection against explosions and fires: No special measures required.

Storage:

Requirements to be met by storerooms and receptacles: No special measures required.

Information about storage in one common storage facility: not required.

Further information about storage conditions: None.

8. Exposure controls and personal protection

Additional information about design of technical systems:

No further data; see item 7.

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Not required.

Protection of hands:

Protective gloves.

Eye protection:

Tightly sealed goggles.

9. Physical and chemical properties

General Information

Form: Suspension

Color: Black

Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100°C (212°F)



Taiwan
Advanced
Nanotech

Flash point: Not applicable.

Auto igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Density at 20°C (68°F): not determined.

Solubility in / Miscibility with water: Fully miscible.

pH-value at 20°C (68°F): 8~9

10. Stability and reactivity:

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

Dangerous reactions: Reacts with acids, alkalis and oxidizing agents.

Dangerous products of decomposition: Danger of toxic pyrolysis products.

11. Toxicological information

Acute toxicity:

Primary irritant effect:

On the skin: Irritant to skin and mucous membranes.

On the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

The product is not subject to classification according to internally calculation methods for preparations.

12. Ecological information

General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13. Disposal considerations

Product:

Recommendation:

Do not dispose of together with household garbage. Do not allow products to reach sewage system.

Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

Recommended cleansing agent:

Water, if necessary with cleansing agents.



14. DOT regulations:

Land transport ADR/RID (Cross-border):

ADR/RID class: No classification assigned.

Maritime transport IMDG:

IMDG class: No classification assigned.

Marine pollutant: No

Air transport ICAO-TI / IATA-DGR:

ICAO / IATA class: Not restricted by IATA.

15. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and establish relationship.



Taiwan
Advanced
Nanotech

**** MATERIAL SAFETY DATA SHEET ****

1. Identification of substance

Production details

Trade name: Washing Buffer 2

Manufacturer/Supplier:

Taiwan Advanced Nanotech Inc.

No.2, Aly. 12, Ln. 81, Longshou St., Taoyuan Dist., Taoyuan City 330, Taiwan (R.O.C.)

Tel.:886-3-3607555

MSDS-No.: WB2-M61EA

2. Composition/Data on components

Chemical characterization

Description: Liquid (Proprietary Compound Mixture)

Dangerous components: Void

3. Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless. Flammable liquid. Causes severe eye irritation. May cause blindness if swallowed. May be fatal if swallowed. May cause skin irritation. May cause central nervous system depression. May cause liver and kidney damage. May cause reproductive and fetal effects. May be absorbed through intact skin. May form explosive peroxides.

Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects

Eye: Vapors may cause eye irritation.

Skin: May cause skin irritation.

Ingestion: May be fatal or cause blindness if swallowed.

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation.

4. First aid measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid.

Inhalation: Get medical aid immediately. Remove from exposure to fresh air



immediately.

Notes to Physician: Treat symptomatically and supportively.

5. Fire fighting measures

General Information: Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use water spray to cool fire-exposed containers.

6. Accidental release measures

General Information: Use proper personal protective equipment.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. A vapor suppressing foam may be used to reduce vapors.

7. Handling and storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. Exposure controls and personal protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Not required.

Protection of hands:

Protective gloves.

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further markers of quality and varies from manufacturer to manufacturer.

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.



Eye protection:

Tightly sealed goggles.

9. Physical and chemical properties**General Information**

Form: Fluid

Color: Colorless

Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100°C (212°F)

Flash point: Not applicable.

Auto igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Density at 20°C (68°F): 1.0 g/cm³

Solubility in / Miscibility with water: Fully miscible.

pH-value at 20°C (68°F): 9.0

10. Stability and reactivity:**Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

Dangerous reactions: Reacts with acids, alkalis and oxidizing agents.

Dangerous products of decomposition: Danger of toxic pyrolysis products.

11. Toxicological information**Acute toxicity:****Primary irritant effect:**

On the skin: Irritant to skin and mucous membranes.

On the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

The product is not subject to classification according to internally calculation methods for preparations.

12. Ecological information

Ecotoxicity: Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified) ria: Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test 250 ppm/6hr/goldfish/lethal/fresh water

Environmental: Ethanol: In water, will volatilize and probably degrade.

Physical: No information available.

Other: Not expected to bioconcentrate in fish.



Taiwan
Advanced
Nanotech

13. Disposal considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. DOT regulations:

Land transport ADR/RID (Cross-border):

ADR/RID class: No classification assigned.

Maritime transport IMDG:

IMDG class: No classification assigned.

Marine pollutant: No

Air transport ICAO-TI / IATA-DGR:

ICAO / IATA class: Not restricted by IATA.

15. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and establish relationship.



**** MATERIAL SAFETY DATA SHEET ****

1. Identification of substance

Production details

Trade name: Elution Buffer

Manufacturer/Supplier:

Taiwan Advanced Nanotech Inc.

No.2, Aly. 12, Ln. 81, Longshou St., Taoyuan Dist., Taoyuan City 330, Taiwan (R.O.C.)

Tel.:886-3-3607555

MSDS-No.: EB-M61EA

2. Composition/Data on components

Chemical characterization

Description: Liquid (Proprietary Compound Mixture)

Dangerous components: Void

3. Hazards Identification

Hazard description: Not applicable.

Information pertaining to particular dangers for man and environment: Not applicable.

NFPA rating (scale 0-4)

Health = 0

Fire = 0

Reactivity = 0

WHMIS-rating (scale 0-4)

Health = 0

Fire = 0

Reactivity = 0

4. First and measures

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing: Immediately call a doctor.

5. Fire fighting measures

Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires spray or alcohol resistant foam.

Protective equipment: Do not inhale explosion gases or combustion gases.



6. Accidental release measures

Person-related safety precautions: Ensure adequate ventilation.

Measures for environmental protection: Do not allow to enter sewers/ surface or ground water.

Measures for cleaning/ collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

7. Handling and storage

Handling:

Information for safe handling: Keep receptacles tightly sealed.

Information about protection against explosions and fires: No special measures required.

Storage:

Requirements to be met by storerooms and receptacles: No special measures required.

Information about storage in one common storage facility: not required.

Further information about storage conditions: None.

8. Exposure controls and personal protection

Additional information about design of technical systems:

No further data; see item 7.

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Not required.

Protection of hands:

Protective gloves.

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further markers of quality and varies from manufacturer to manufacturer.

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles.



9. Physical and chemical properties

General Information

Form: Fluid

Color: Colorless

Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100°C (212°F)

Flash point: Not applicable.

Auto igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Density at 20°C (68°F): 1.0 g/cm³

Solubility in / Miscibility with water: Fully miscible.

pH-value at 20°C (68°F): 8

10. Stability and reactivity:

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

Dangerous reactions: Reacts with acids, alkalis and oxidizing agents.

Dangerous products of decomposition: Danger of toxic pyrolysis products.

11. Toxicological information

Acute toxicity:

Primary irritant effect:

On the skin: Irritant to skin and mucous membranes.

On the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

The product is not subject to classification according to internally calculation methods for preparations.

12. Ecological information

General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13. Disposal considerations

Product:

Recommendation:

Do not dispose of together with household garbage. Do not allow products to reach sewage system.

Uncleaned packagings:



Advanced
Nanotech

Recommendation:

Disposal must be made according to official regulations.

Recommended cleansing agent:

Water, if necessary with cleansing agents.

14. DOT regulations:

Land transport ADR/RID (Cross-border):

ADR/RID class: No classification assigned.

Maritime transport IMDG:

IMDG class: No classification assigned.

Marine pollutant: No

Air transport ICAO-TI / IATA-DGR:

ICAO / IATA class: Not restricted by IATA.

15. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and establish relationship.

