

Material Safety Data Sheet

A-9002-001 – Antibody-Oligonucleotide All In One Conjugation Kit

I. Product and Company Identification

Product Name/Description: S-HyNic

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121

Product Number: # A-9202-001-01

Synonym: S-HyNic (succinimidyl 6-hydrazinonicotinate acetone hydrazone), HyNic

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: S-HyNic
Molecular formula: C₁₃H₁₄N₄O₄
Molecular weight: M.W. 290.2

Ingredient Name	CAS Number	%	EC number	Classification
S-HyNic	362522-50-7	>90%	Not available	Not available

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

NFPA Rating (Scale 0-4): Health = unknown Fire = unknown Reactivity = unknown

HMIS Rating (Scale 0-4): Health = unknown Fire = unknown Reactivity = unknown

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A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are followed. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing.

Physical Appearance: Off-white dry residue that is slightly yellowish when resuspended in an aqueous solution.

B. Potential Health Effects:

Acute Eye: Unknown. Avoid contact or exposure to eyes.

Acute Skin: Unknown. Avoid contact or exposure to skin.

Acute Inhalation: Unknown. Avoid contact or exposure to skin.

Acute ingestion: Unknown. Avoid ingestion.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: Materials contained in this product are not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

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Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not breathe dust. Do not get into eyes, skin or clothing. Avoid prolonged or repeated exposure. Handle wearing gloves. Store material dry and refrigerated and keep container tightly closed.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
S-HyNic	No occupational limits established	No occupational limits established	No occupational limits established

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

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IX. Physical and Chemical Properties

Component: S-HyNic
Physical Appearance: Slight yellowish-white residue
Percent Purity: >90%
Boiling Point: Not available
Melting Point: Not available
Specific gravity: Not available
Freezing Point: Not Available
Vapor pressure: Not available
Vapor density: Not available
Solubility: soluble in DMF and DMSO solvents
Evaporation rate: Not available

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.
Conditions to Avoid: Susceptible to aqueous hydrolysis, avoid exposure to aqueous solutions before use.
Materials/Chemicals to Be Avoided: Aromatic hydrazines decompose on exposure to oxidizing agents and metals
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide in case of fire. Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.
Chronic toxicity/Conclusion/Summary: Not available.
Carcinogenicity/Conclusion/Summary: Not available.
Mutagenicity/Conclusion/Summary: Not available.
Teratogenicity/Conclusion/Summary: Not available.
Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Material Safety Data Sheet

Environmental effects: No known significant effects or critical hazards.

Aquatic ecotoxicity/Conclusion/Summary: Not available.

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

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Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Not controlled under WHMIS (Canada).

Canadian Lists:

Canadian ARET: None of the components are listed.
Canadian NPRI: None of the components are listed.
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.
CEPA Toxic substances: None of the components are listed

Canadian Inventory: All components are listed or exempted

EU Regulations

EU Classification: This product is not classified according to EU legislation.

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

II. Product and Company Identification

Product Name/Description: Sulfo-S-4FB

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121

Product Number: # A-9202-001-02

Synonym: Sulfo-succinimidyl formylbenzoate sodium salt, Sulfo-S-4FB, (Sulfosuccinimidyl-4-formyl benzoate)

Material Safety Data Sheet

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Sulfo-S-4FB

Molecular formula: C₁₂H₈NO₈SNa⁺

Molecular weight: 349.0

CAS number: Custom synthesized compound. No CAS Number.

Physical appearance: Sulfo-S-4FB is supplied as white solid.

Ingredient Name	CAS Number	%	EC number	Classification
Sulfo-S-4FB	Not available	>90%	Not available	Not available

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

NFPA Rating (Scale 0-4): Health = unknown Fire = unknown Reactivity = unknown

HMIS Rating (Scale 0-4): Health = unknown Fire = unknown Reactivity = unknown

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Off-white dry residue that is clear when resuspended in an aqueous solution.

B. Potential Health Effects:

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Acute Eye: Unknown. Avoid contact or exposure to eyes.

Acute Skin: Unknown. Avoid contact or exposure to skin.

Acute Inhalation: Unknown. Avoid contact or exposure to skin.

Acute ingestion: Unknown. Avoid ingestion.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue,

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disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not breathe dust. Do not get into eyes, skin or clothing. Avoid prolonged or repeated exposure. Handle wearing gloves. Store material dry and keep refrigerated. Keep container tightly sealed in re-sealable aluminum pouch containing dessicant at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Sulfo-S-4FB	No occupational limits established	No occupational limits established	No occupational limits established

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Sulfo-S-4FB

Physical Appearance: White powder

Percent Purity: >90%

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Material Safety Data Sheet

Solubility: soluble in aqueous as well as DMF and DMSO solvents

Evaporation rate: Not available

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.

Conditions to Avoid: Susceptible to aqueous hydrolysis, avoid exposure to aqueous solutions before use.

Materials/Chemicals to Be Avoided: Aromatic aldehydes decompose on exposure to reducing agents

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide in case of fire. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: Not available.

Aquatic ecotoxicity/Conclusion/Summary: Not available.

Other adverse effects: Not available.

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Material Safety Data Sheet

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Not controlled under WHMIS (Canada).

Canadian Lists:

Canadian ARET: None of the components are listed.

Canadian NPRI: None of the components are listed.

Alberta Designated Substances: None of the components are listed.

Ontario Designated Substances: None of the components are listed.

Quebec Designated Substances: None of the components are listed.

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CEPA Toxic substances: None of the components are listed

Canadian Inventory: All components are listed or exempted

EU Regulations

EU Classification: This product is not classified according to EU legislation.

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

III. Product and Company Identification

Product Name/Description: Solution A

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121

Product Number: # A-9202-001-03

Synonym: Ethylenediaminetetraacetic acid, (Ethylenedinitrilo) tetraacetic acid disodium salt; Disodium EDTA; disodium dihydrogen ethylenediaminetetraacetate; disodium edetate; N,N'-1,2-ethanediybis [N-(carboxymethyl)- glycine], disodium salt, dihydrate

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

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Component Name: Solution A

Physical appearance: Clear, colorless aqueous liquid

Solution A is supplied as a clear aqueous solution containing 0.5 mM EDTA (metal chelator) at pH 8.0.

Ingredient Name	CAS Number	%	EC number	Classification
Ethylenediaminetetraacetic acid, EDTA, sodium salt	60-00-4	0.018%	205-358-3	R36,R37, R38 S22-S26
Water	07732-18-5	99.982%	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) at concentrations <1%, this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

HMIS Rating (Scale 0-4): Health = 1 Fire = 0 Reactivity = 0

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact with alkaline solutions can cause blindness.

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

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Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
EDTA	Not listed	Not listed	Unknown

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Solution A

Physical Appearance: Clear colorless liquid

Percent Purity: 0.018%

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: aqueous solutions

Evaporation rate: Not available

pH:7.0

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.

Conditions to Avoid: Avoid strong oxidizing agents.

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Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides in case of fire. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Mutagen: Hamster 200 gm/l **Cell type:** Lung, cytogenetic analysis.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity:— Mutagen: Hamster 200 gm/l **Cell type:** Lung, cytogenetic analysis.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: No known significant effects or critical hazards.

Aquatic ecotoxicity/Conclusion/Summary: 96 Hr LC50 bluegill: 159 mg/L (Static)

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Ethylenediaminetetraacetic acid is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

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XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: This product is listed.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: This product is listed.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Not controlled under WHMIS (Canada).

Canadian Inventory: All components are listed or exempted

EU Regulations

Risk Phrases: R36 irritating to eyes
R37 irritating to respiratory system
R38 irritating to skin

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XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

IV. Product and Company Identification

Product Name/Description: Solution B

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Product Number: # A-9202-001-04

Synonym: None

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Solution B

Physical appearance: Clear, colorless aqueous liquid

Solution B is Solution B is supplied an aqueous solution containing sodium phosphate, sodium chloride solution, pH 7.4

Ingredient Name	CAS Number	%	EC number	Classification
Sodium phosphate, monobasic	10049-21-5	<1%	231-449-2	Xi, R 36/37/38

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Sodium phosphate, dibasic	7558-79-4	<1%	231-448-7	Xi, R 36/37/38
Sodium chloride	7647-14-5	<1%	231-598-3	Xi, R 36/37/38
Water	07732-18-5	98%	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

HMIS Rating (Scale 0-4): Health = 2 Fire =1 Reactivity =1

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Material Safety Data Sheet

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Material Safety Data Sheet

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Sodium phosphate, dibasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium phosphate, monobasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium chloride	N/A	N/A	N/A

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Solution B

Physical Appearance: Clear colorless liquid

Percent Purity: Not available

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: aqueous solutions

Evaporation rate: Not available

pH:7.4

Material Safety Data Sheet

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.

Conditions to Avoid: None known

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: No known significant effects or critical hazards. Leaches through the soil or sediment at a moderate rate. Accumulates very little in bodies of living organisms.

Aquatic ecotoxicity/Conclusion/Summary: None known.

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and

Material Safety Data Sheet

contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: This product is listed.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Not controlled under WHMIS (Canada).

Canadian Inventory: All components are listed or exempted

Material Safety Data Sheet

EU Regulations

EC Classification: X_i -irritant

Risk Phrases: R36 irritating to eyes
R37 irritating to respiratory system
R38 irritating to skin

International Regulations

International Lists: Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

V. Product and Company Identification

Product Name/Description: Solution C

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Product Number: # A-9202-001-05

Synonym: None

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)

Material Safety Data Sheet

Solulink-858.625.0670

II. Chemical Composition

Component Name: Solution C

Physical appearance: Clear, colorless aqueous liquid

Solution C is supplied as an aqueous solution containing sodium phosphate, sodium chloride solution

Ingredient Name	CAS Number	%	EC number	Classification
Sodium phosphate, monobasic	10049-21-5	<1%	231-449-2	Xi, R 36/37/38
Sodium phosphate, dibasic	7558-79-4	<1%	231-448-7	Xi, R 36/37/38
Sodium chloride	7647-14-5	<1%	231-598-3	Xi, R 36/37/38
Water	07732-18-5	98%	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

HMIS Rating (Scale 0-4): Health = 2 Fire =1 Reactivity =1

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommended instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Material Safety Data Sheet

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Material Safety Data Sheet

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Sodium phosphate, dibasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium phosphate, monobasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium chloride	N/A	N/A	N/A

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Solution C

Material Safety Data Sheet

Physical Appearance: Clear colorless liquid

Percent Purity: Not available

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: aqueous solutions

Evaporation rate: Not available

pH:6.0

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.

Conditions to Avoid: None known

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: No known significant effects or critical hazards. Leaches through the soil or sediment at a moderate rate. Accumulates very little in bodies of living organisms.

Material Safety Data Sheet

Aquatic ecotoxicity/Conclusion/Summary: None known.

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.

Material Safety Data Sheet

Clean Water Act (CWA) 311: This product is listed.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Not controlled under WHMIS (Canada).

Canadian Inventory: All components are listed or exempted

EU Regulations

EC Classification: X_i -irritant

Risk Phrases: R36 irritating to eyes
R37 irritating to respiratory system
R38 irritating to skin

XVI. Other Information

Key Legend Information:

N/A – Not Applicable

ND – Not Determined

ACGIH – American Conference of Governmental Industrial Hygienists

OSHA – Occupational Safety and Health Administration

TLV – Threshold Limit Value

PEL – Permissible Exposure Limit

TWA – Time Weighted Average

STEL – Short Term Exposure Limit

NTP – National Toxicology Program

IARC – International Agency for Research on Cancer

VI. Product and Company Identification

Product Name/Description: Solution E

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Product Number: # A-9202-001-07

Synonym: None

For Product Information/Emergency Phone Number:

Material Safety Data Sheet

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Solution E

Physical appearance: Clear, colorless aqueous liquid

Chemical composition: A sodium phosphate-based buffer composition containing various other non-hazardous buffer components at pH 6.0.

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

HMIS Rating (Scale 0-4): Health = 1 Fire =1 Reactivity = 0

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

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Acute ingestion:

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue,

Material Safety Data Sheet

disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Sodium phosphate, dibasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium phosphate, monobasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium chloride	N/A	N/A	N/A

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Solution E

Physical Appearance: Clear colorless liquid

Percent Purity: Not available

Boiling Point: Not available

Melting Point: Not available

Material Safety Data Sheet

Specific gravity: Not available
Freezing Point: Not Available
Vapor pressure: Not available
Vapor density: Not available
Solubility: aqueous solutions
Evaporation rate: Not available
pH: 6.0

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.

Conditions to Avoid: None known

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: No known significant effects or critical hazards. Leaches through the soil or sediment at a moderate rate. Accumulates very little in bodies of living organisms.

Aquatic ecotoxicity/Conclusion/Summary: None known.

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

Material Safety Data Sheet

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: This product is listed.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Material Safety Data Sheet

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Not controlled under WHMIS (Canada).

Canadian Inventory: All components are listed or exempted

EU Regulations

EC Classification: X_i -irritant

Risk Phrases: R36 irritating to eyes
R37 irritating to respiratory system
R38 irritating to skin

International Regulations

International Lists: Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

VII. Product and Company Identification

Product Name/Description: Spin Column (Red Cap)

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Material Safety Data Sheet

Product Number: # A-9202-001-08

Synonym: None

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Spin Column (Red Cap)

Physical appearance: liquid slurry gel

Chemical composition:

Spin Column (Red Cap) contains a polymeric chromatography resin (slurry) equilibrated in sodium phosphate/sodium chloride solution pH 7.4

Ingredient Name	CAS Number	%	EC number	Classification
Sodium phosphate, monobasic	10049-21-5	< 1%	231-449-2	Xi, R 36/37/38
Sodium phosphate, dibasic	7558-79-4	< 1%	231-448-7	Xi, R 36/37/38
Sodium chloride	7647-14-5	< 1%	231-598-3	Xi, R 36/37/38
Polymeric resin	Not available	50%	Not available	Not available
Water	07732-18-5	47.63	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

HMIS Rating (Scale 0-4): Health = 1 Fire = 1 Reactivity = 0

Material Safety Data Sheet

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Material Safety Data Sheet

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: In a fire or if heated, a pressure increase will occur and the container may burst.

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Sodium phosphate, dibasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium phosphate, monobasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium chloride	N/A	N/A	N/A

Material Safety Data Sheet

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Spin Column (Red Cap)

Physical Appearance: White gel slurry in a sealed plastic housing

Percent Purity: Not available

Boiling Point: Not available

Melting Point: Not available

Specific gravity: 1.22 g/mL

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: Easily dispersible in aqueous solutions

Evaporation rate: Not available

pH: 7.4

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.

Conditions to Avoid: None known

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Material Safety Data Sheet

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: No known significant effects or critical hazards. Leaches through the soil or sediment at a moderate rate. Accumulates very little in bodies of living organisms.

Aquatic ecotoxicity/Conclusion/Summary: None known.

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Material Safety Data Sheet

Proper Shipping Name: Not regulated
IATA UN Number: Not regulated
Hazard Class: Not regulated
Packaging Group: Not regulated

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: This product is listed.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada): Not controlled under WHMIS (Canada).

Canadian Inventory: All components are listed or exempted

EU Regulations

EC Classification: X_i -irritant

Risk Phrases: R36 irritating to eyes
R37 irritating to respiratory system
R38 irritating to skin

International Regulations

International Lists: Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.

Material Safety Data Sheet

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

VIII. Product and Company Identification

Product Name/Description: Spin Column (Yellow Cap)

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Product Number: # A-9202-001-09

Synonyms: For aniline component
(RTECS Number: BW6650000)

Aminophen, Aniline (Italian, Polish), Anilin (Czech), Benzamine, Arylamine, Aromatic amine
Phenylamine, Benzenamine, Benzidam

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Spin Column (Yellow Cap)

Physical appearance: liquid slurry gel in a sealed plastic enclosure

Chemical composition:

Spin Column (Yellow Cap) contains a 0.5 mL of a polymeric chromatography resin (slurry) equilibrated in sodium phosphate/sodium chloride solution pH 6.0 containing less than 0.3% aniline.

Material Safety Data Sheet

Ingredient Name	CAS Number	%	EC number	Classification
Sodium phosphate, monobasic	10049-21-5	0.1	231-449-2	Xi, R 36/37/38
Sodium phosphate, dibasic	7558-79-4	0.25%	231-448-7	Xi, R 36/37/38
Sodium chloride	7647-14-5	0.44%	231-598-3	Xi, R 36/37/38
Aniline	62-53-3	0.41%	200-539-3	T, R /23/24/25/40 S 2/28/45
Polymeric resin	Not available	50%	Not available	Not available
Water	07732-18-5	48.8%	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) at concentrations <1%, this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Major Health Hazards:

Under normal use conditions, product as manufactured is not anticipated to cause major health hazards. May cause skin, eye and respiratory irritation from accidental exposure.

NFPA Ratings (Scale 0-4): Health = 2 Fire = 0 Reactivity = 1

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

NFPA Ratings (Scale 0-4): Health = 2 Fire = 0 Reactivity = 1

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

ROUTES OF ENTRY: Inhalation, ingestion and skin absorption

B. Potential Health Effects:

Acute Eye: Direct contact may cause irritation with redness

Acute Skin: May cause moderate skin irritation.

Material Safety Data Sheet

Acute Ingestion: Not considered a likely route of exposure under normal product use conditions. Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause effects similar to those of acute inhalation. Acute Inhalation: Effects may be delayed. May cause respiratory tract irritation.

Chronic: May cause liver and kidney damage. May cause fetal effects. Repeated exposure may cause sensitization dermatitis. Chronic exposure may cause hemolysis of the red blood cells followed by stimulation of the bone marrow. Laboratory experiments have resulted in mutagenic effects. May cause cyanosis - a blue-gray coloring of the skin

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. SEEK IMMEDIATE medical attention.

Notes to Physician: Absorption of this product into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Moderate degrees of cyanosis need to be treated only by supportive measures: bed rest and oxygen inhalation. Cleansing of the entire contaminated area of the body is of utmost importance. Do not administer alcohol in any form. Individuals with liver or kidney disorders, impaired cardiovascular status, or a history of alcoholism may be more susceptible to the effects of this product. Effects may be delayed. If cyanosis is severe, intravenous injection of Methylene blue, 1mg/kg of body weight may be of value.

Antidote: Methylene blue, alone or in combination with oxygen is indicated as a treatment in nitrite induced methemoglobinemia.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard when used as directed.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Material Safety Data Sheet

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: In a fire or if heated, a pressure increase will occur and sealed plastic container may burst.

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Sodium phosphate, dibasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium phosphate, monobasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³

Material Safety Data Sheet

Sodium chloride	N/A	N/A	N/A
Aniline	TLV-TWA 2ppm	N/A	PEL-TWA 5ppm

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Spin Column (Yellow Cap)

Physical Appearance: White gel slurry in a sealed plastic housing

Percent Purity: Not available

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: Easily dispersible in aqueous solutions

Evaporation rate: Not available

pH: 6.0

X. Stability and Reactivity

Chemical Stability: This compound is considered stable.

Conditions to Avoid: Temperatures $<0^{\circ}\text{C}$ or $> 50^{\circ}\text{C}$

Materials / Chemicals to Be Avoided: Reactive with strong oxidizing agents, metal, acids, alkali

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition

XI. Toxicological Information

United States

Material Safety Data Sheet

Information for Aniline

Route of exposure

Skin absorption: toxic if absorbed through skin. Readily absorbed through skin.

Eye contact: causes severe eye irritation.

Ingestion: toxic if swallowed

Inhalation: Material is irritating to mucous membranes and upper respiratory tract.
Toxic if inhaled.

Sensitization;

Skin: May cause allergic skin reaction.

Target Organs:

Blood, bladder, kidneys, central nervous system.

Signs and symptoms of exposure:

Fatigue. Incoordination. Nausea. Vomiting. Headache. Dizziness.

Symptoms may be delayed. Unconsciousness. Weakness. Confusion. Drowsiness.

Absorption into body leads to methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2-4 hours.

Carcinogenicity:

ACGIH: Classified A3 (proven for animal)

IARC: (not classifiable for human)

OSHA: Not available

Mutagenic Effects:

Mutagenic for mammalian somatic cells. Species human, dose 300 umol.L, cell type lymphocyte, mutation test: sister chromatid exchange.

Mutagenic for bacteria and or yeast.

Reproductive Effects:

Chronic exposure to aniline (6-13 days, pregnant) poses reproductive hazard in mouse at 4.48 g/kg (oral)

Acute Oral Toxicity: Oral LD50; Acute: 250 mg/Kg (rat), 464 mg/Kg (mouse);

Acute Dermal Toxicity: Dermal (LD50): Acute: 820 mg/Kg (rabbit), 1400 mg/Kg (rat)

XII. Ecological Information

Environmental effects: Not available

Aquatic ecotoxicity/Conclusion/Summary: None known.

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Material Safety Data Sheet

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

XIV. Transportation Information

DOT

Proper Shipping Name: Aniline

UN #: 1547

Packaging Group: II

Hazard Label Statement: - Aqueous solutions containing 1% or less aniline by volume is not subject to these regulations.

IATA

IATA Special Provision - Aqueous solutions containing 1% or less aniline by volume is not subject to these regulations.

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

TSCA

8(b) inventory: aniline

Chemical Weapons Convention: No TSCA 12(b): No CDTA: Yes

SARA Title III Hazard Classes:

SARA 302/304/311/312 extremely hazardous substances: aniline :5000 lbs

SARA 302/304/311/312 extremely hazardous substances: aniline

CERCLAL Hazardous substances: aniline: 5000 lbs (2268 kg)

Other Regulations:

WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

California prop, 65; This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: aniline to cause birth defects or reproductive harm which requires a warning under the statute: aniline California prop, 65: No significant risk level: aniline: 0.1 mg/ml (value)

Connecticut hazardous material survey: aniline

Illinois toxic substances disclosure to employee act: aniline

New York release reporting list: aniline

Rhode Island RTK: aniline

Pennsylvania RTK: aniline

Material Safety Data Sheet

Minnesota: aniline
Massachusetts RTK: aniline
New Jersey: aniline
Louisiana RTK: aniline
California Director's list of Hazardous substances: aniline

Canada

WHMIS (Canada): Class D-1A: Material causing immediate and serious toxic effects (Very toxic)
Class D-2B: Material causing other toxic effects (Toxic)

EU Regulations

EC Classification: T: Toxic, Xi –irritant

Risk Phrases:

R2: Keep out of reach of children
R36 irritating to eyes
R23 Toxic by inhalation
R24 Toxic in contact with skin
R25 Toxic if swallowed
R37 irritating to respiratory system
R38 irritating to skin

International Regulations

Australian Hazchem Code: 3X

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

IX. Product and Company Identification

Product Name/Description: Spin Column (Blue Cap)

Material Safety Data Sheet

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Product Number: # A-9202-001-10

Synonym: None

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Spin Column (Blue Cap)

Physical appearance: liquid slurry gel

Chemical composition:

Spin Column (Blue Cap) contains a polymeric chromatography resin equilibrated in a sodium phosphate-buffered saline solution containing 0.05% sodium azide as preservative.

Ingredient Name	CAS Number	%	EC number	Classification
Sodium phosphate, monobasic	10049-21-5	<0.1%	231-449-2	Xi, R 36/37/38
Sodium phosphate, dibasic	7558-79-4	<0.2%	231-448-7	Xi, R 36/37/38
Sodium chloride	7647-14-5	<0.1%	231-598-3	Xi, R 36/37/38
EDTA	64-02-8	<0.1%	200-573-9	Xn; R 22
Sodium azide	26628-22-8	0.05%	247-852-1	T+; N R 28-32-50/53
Polymeric resin	N/A	50%	N/A	N/A
Water	07732-18-5	47.5%	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Major Health Hazards: Respiratory tract irritation. Skin and eye irritation.

Material Safety Data Sheet

Physical Hazards: None

In accordance with 29 CFR 1910.1200 reagents this product contains less than 1% hazardous chemicals and less than 0.1% carcinogenic chemicals.

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

HMIS Rating (Scale 0-4): Health = 1 Fire = 1 Reactivity = 0

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

Material Safety Data Sheet

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: In a fire or if heated, a pressure increase will occur and the container may burst.

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Material Safety Data Sheet

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Sodium phosphate, dibasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
Sodium phosphate, monobasic	PEL-TWA 1 mg/m ³	Not listed	PEL-TWA 1 mg/m ³ PEL-STEL 3 mg/ m ³
EDTA	Not available	Not available	Not available
Sodium azide	Not available	Not available	Not available

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Spin Column (Blue Cap)

Physical Appearance: White gel slurry in a sealed plastic housing

Percent Purity: Not available

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: Easily dispersible in aqueous solutions

Evaporation rate: Not available

pH: 7.2

X. Stability and Reactivity

Chemical Stability: Stable under recommended use conditions. Sodium azide reacts with lead and copper plumbing forming highly explosive metal azides.

Conditions to Avoid: Avoid exposure to lead and copper.

Material Safety Data Sheet

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous Polymerization: Under normal conditions of storage and use, polymerization products should not be produced.

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available.

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: No known significant effects or critical hazards. Leaches through the soil or sediment at a moderate rate. Accumulates very little in bodies of living organisms.

Aquatic ecotoxicity/Conclusion/Summary: None known.

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and

Material Safety Data Sheet

regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

HCS Classification: Not regulated.

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: This product is listed.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

EU Regulations

EC Classification: Xi = Irritant

T+ = Toxic

Risk Phrases:

R22 Harmful if swallowed.

Material Safety Data Sheet

R36 Irritating to eyes
R37 Irritating to respiratory system
R38 Irritating to skin
R50 Very toxic to aquatic organisms.
R51 Toxic to aquatic organisms.
R52 Harmful to aquatic organisms.
R53 May cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S23 Keep out of reach of children
S24 Avoid skin contact.
S25 Avoid contact with eyes
S26 In case of contact with eyes, rinse immediately with water and seek medical advice
S46 If swallowed, see medical advice immediately and show this MSDS

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

X. Product and Company Identification

Product Name/Description: DMF

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Product Number: # A-9202-001-11

Synonym: DMF, Dimethylformamide, formyldimethylamine, formamide, N,N-dimethylformamide

For Product Information/Emergency Phone Number:

Material Safety Data Sheet

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: DMF
Physical appearance: Clear, colorless liquid
Formula: C₃H₇NO
Molecular Weight: 73.09 g/mol

Ingredient Name	CAS Number	%	EC number	Classification
DMF	68-12-2	98-100%	200-679-5	T R20, R21, R36, R51R61 S45, S53

III. Hazards Identification

Major Health Hazards: Warning, harmful if swallowed, inhaled or absorbed through skin. Causes irritation to skin, eyes, and respiratory tract. Toxic to liver. Affects kidneys, cardiovascular system and central nervous system. Causes alcohol intolerance and skin problems.

Physical Hazards: Flammable liquid and vapor

NFPA Rating (Scale 0-4): Health = 2 Fire = 2 Reactivity = 0 Contact rating = 3

Emergency Overview and Health Hazards:

A. Emergency Overview:

OSHA Hazard:

Combustible Liquid, Irritant, Teratogen

Target Organs

Kidney, Liver, Blood, Cardiovascular system., Central nervous system

Other hazards which do not result in classification

Rapidly absorbed through skin.

Physical Appearance: Clear colorless liquid

Material Safety Data Sheet

B. Potential Health Effects:

Acute Eye:

Direct contact causes irritation, redness and pain. May cause severe irritation and blurred vision.

Acute Skin:

Causes skin irritation with redness, itching, and pain. Can cause skin problems. Absorption can readily occur through the skin causing symptoms that parallel inhalation.

Acute Inhalation:

Exposure causes irritation to respiratory tract. of the mucous membranes. Symptoms may include coughing, shortness of breath, and difficulty breathing. May cause abdominal pain, loss of appetite, nausea, weakness, dizziness, headache, constipation, vomiting, diarrhea, increased blood pressure anxiety, and palpitations. A flushing of the face and skin may occur, especially coincident with ingestion of alcoholic beverages

Acute ingestion:

Ingestion causes gastrointestinal irritation. Symptoms parallel inhalation. Fatal dose estimated at 10 grams.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

Immediately flush eyes with copious amounts of water for at least 15 minutes. Lift upper and lower eyelids occasionally. GET MEDICAL ATTENTION. develops seek medical attention.

Skin Exposure:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. GET MEDICAL ATTENTION.

Inhalation Exposure:

Move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel. GET MEDICAL ATTENTION.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: Material is considered flammable.

Autoignition: 445 °C (833 °F)

Flash Point: 58°C (136°F)

Flammability Limits (vol/vol%): **Lower: 2.2** **Upper: 15.2**

Extinguishing Media: Use dry chemical, alcohol foam or carbon dioxide

Special Fire Fighting Procedures: In the event of a fire wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water spray may be used to extinguish surrounding fire and cool exposed containers. Water spray will also reduce fume and irritant gas.

Material Safety Data Sheet

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material either refrigerated or at room temperature. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

DMF or N, N-dimethylformamide

ACGIH (United States, 0/2000). Skin TWA: 10 ppm
OSHA (United States, 0/1989). Skin TWA: 10 ppm
NIOSH (United States, 0/1994). Skin TWA: 10 ppm
OSHA (United States, 0/1989). Skin TWA: 30 mg/m³
ACGIH TLV (United States, 0/1989). Skin TWA: 10 ppm 8 hour(s).
OSHA PEL (United States). Skin TWA: 30 mg/m³ 8 hour(s).
MSHA (United States). Skin TWA: 30 mg/m³

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: DMF

Physical Appearance: Clear colorless liquid

Odor: fishy, pungent

Solubility: completely soluble with water

Material Safety Data Sheet

Percent Purity: 98-100%
% volatiles by volume @ 21°C :100
Boiling Point: 307°F,253°C
Melting Point: 170-61°C
Specific gravity: 0.949 @ 20 °C (68 °F)
Freezing Point: Not Available
Evaporation rate (butyl Acetate =1):0.17
Vapor pressure (mmHg): 2.7 @ 20 °C

X. Stability and Reactivity

Chemical Stability:

Stable under ordinary conditions of use and storage

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

Materials /Incompatibles/Chemicals to Be Avoided:

Bromine, carbon tetrachloride, chromic anhydride,2,5-dimethylpyrole, phosphorus oxychloride,hexachlorobenzene, magnesium nitrate, hethylene idisocyanate, phosphorus trioxide, triethyl aluminum, organic nitrates, acidic and alkaline materials and other halogenated compounds. Contact with iron or strong oxidizers may cause fires and explosions: may react violently with alkyl aluminums. Methylene diisocyanate can polymerize violently on contact with DMF.

Hazardous Decomposition Products:

May form ammonia, carbon dioxide, amines, and nitrogen oxides when heated to decomposition. Above 350 °C DMF begins to degrade with formation of dimethylamine and carbon monoxide.

Hazardous Polymerization:

Will not occur.

XI. Toxicological Information

United States

Carcinogenicity:NTP: Not listed, IARC: Not listed, ACGIH: Not listed, CA Prop 65: Not listed

Reported non-mutagenic in a number of assays using cultured cells, yeast and bacteria.

Epidmiology: Experimental reproductive effects have been reported

Teratogenicity: No information available

Reproductive effects: Similar compounds have shown reproductive effects.

Neurotoxicity: No information available.

LD50/LC50 for CAS # 68-12-2

Acute Oral Toxicity:LD50 rat, LD50 = 2800 mg/kg

Acute Inhalation Toxicity: rat LC50 = 3421 ppm/1H

Skin toxicity: LD50 rabbit 4.72 g/kg

Material Safety Data Sheet

XII. Ecological Information

Environmental effects:

When released into soil or water this material is expected to readily biodegrade and is not expected to bioaccumulate. When released into the air, this material is expected to degrade by photochemical reaction to produce hydroxyl radicals.

Persistence/degradability

Bioaccumulative potential

VCI WGK: No products were found.

Ecotoxicity data

Persistence/degradability: No data available

Bioaccumulative potential: No data available

Other ecological information: No data available

Aquatic ecotoxicity/Conclusion/Summary:

DMF Daphnia magna (EC50)

Blue Gill (LC50)

Trout (LC50)

Minnnows (LC50)

9600 to 13100 mg/l

6700 to 7500 mg/l

9000 to 13000 mg/l

10400 to 10800 mg/l

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

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated in small quantities

UN #: not regulated in small quantities

Hazard Class: not regulated in small quantities

Packaging Group: Not regulated in small quantities

Label Statement: Not regulated in small quantities

Material Safety Data Sheet

IATA

Proper Shipping Name: Not regulated in small quantities

IATA UN Number: Not regulated in small quantities

Hazard Class: Not regulated in small quantities

Packaging Group: Not regulated in small quantities

XV. Regulatory Information

United States

U.S. Federal regulations:

OSHA Hazards

Combustible liquid, Irritant, Teratogen

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

N,N-Dimethylformamide CAS-No.68-12-2

Revision Date:2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

N,N-Dimethylformamide CAS-No.68-12-2

Revision Date: 2007-07-01

Pennsylvania Right To Know Components

N,N-Dimethylformamide

CAS-No. 68-12-2

Revision Date: 2007-07-01

New Jersey Right To Know Components

N,N-Dimethylformamide

CAS-No.68-12-2

Revision Date:2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

EU Regulations

EC Classification: X_i -irritant

T -toxic

Risk Phrases:

R20 Harmful by inhalation

R21 Harmful by contact with skin

R36 Irritating to eyes

R61 May cause harm to unborn child

R51 Avoid exposure - obtain special instructions before use.

Material Safety Data Sheet

Safety Phrases:

S53 Avoid exposure and obtain special instructions before use.
S45 In case of accident or if you feel unwell; seek medical advice, show this label

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

XI. Product and Company Identification

Product Name/Description: Conjugate Quench Reagent

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121

Product Number: # A-9202-001-12

Synonym: 2-sulfobenzaldehyde, Benzaldehyde-2-sulfonic acid sodium salt, 2-sulfobenzaldehyde sodium salt

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Conjugate Quench Reagent
Chemical Name: 2-sulfobenzaldehyde, sodium salt
Catalog Number: A-9201-001-12
Molecular Formula: C₇H₅O₄S.Na
Molecular Weight: 208.17

Material Safety Data Sheet

Physical appearance: Clear, colorless aqueous liquid

Conjugate Quench Reagent is supplied as 50 mM sulfobenzaldehyde in 100 mM MES buffer pH 6.0.

Ingredient Name	CAS Number	%	EC number	Classification
Conjugate Quench Reagent	1008-72-6	1%	263-541-3	S24, S25
MES (2-(N-morpholino)ethanesulfonic acid)	4432-31-9	1.9%	213-758-4	None listed
Water	07732-18-5	97.1%	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

OSHA Hazard: Irritant

NFPA Ratings (Scale 0-4): Health = 1 Fire = 1 Reactivity = 0

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

Material Safety Data Sheet

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Material Safety Data Sheet

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated and in the dark. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
MES	No occupational limits established	No occupational limits established	No occupational limits established
2-sulfobenzaldehyde	No data available	No data available	No data available

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Conjugate Quench Reagent

Physical Appearance: Clear colorless liquid

Percent Purity: 1%

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: aqueous solutions

Evaporation rate: Not available

pH: 6.0

Material Safety Data Sheet

X. Stability and Reactivity

Chemical Stability: This compound is considered stable under recommended storage and use conditions.

Materials / Chemicals to Be Avoided: Aluminium, bases, iron, oxidants and phenol causing fire.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides (NO_x)

Hazardous Polymerization: Unknown

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

MES: No LD50/LC50 information found relating to normal routes of occupational exposure.

2-sulfobenzaldehyde: toxicological properties of this substance have not been fully investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: 2-formylbenzenesulfonic acid, sodium salt,- Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

XII. Ecological Information

Environmental effects: No data available.

Aquatic ecotoxicity/Conclusion/Summary: No data available.

Other adverse effects: No data available.

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Ethylenediaminetetraacetic acid is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

Material Safety Data Sheet

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 –No SARA hazards.

EU Regulations

Classification: Not classified

XVI. Other Information

Key Legend Information:

N/A – Not Applicable

ND – Not Determined

ACGIH – American Conference of Governmental Industrial Hygienists

OSHA – Occupational Safety and Health Administration

TLV – Threshold Limit Value

PEL – Permissible Exposure Limit

TWA – Time Weighted Average

STEL – Short Term Exposure Limit

NTP – National Toxicology Program

IARC – International Agency for Research on Cancer

XII. Product and Company Identification

Material Safety Data Sheet

Product Name/Description: 2-HP Reagent

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121

Product Number: # A-9202-001-13

Synonym: 2-Hydrazinopyridine dihydrochloride

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: 2-HP Reagent also known as 2-Hydrazinopyridine dihydrochloride

Molecular formula: C₅H₇N₃.2HCl

Molecular weight: 181.1

Physical appearance: Clear, colorless aqueous liquid

2-HP Reagent is supplied as a 0.5 mM 2-hydrazinopyridine hydrochloride in MES (2-(N-morpholino)ethanesulfonic acid) buffer at pH 6.0.

Ingredient Name	CAS Number	%	EC number	Classification
2- Hydrazinopyridine dihydrochloride	62437-99-4	0.009%	263-541-3	None available
MES (2-(N-morpholino)ethanesulfonic acid)	4432-31-9	1.9%	213-758-4	None available
Water	07732-18-5	98.1%	N/A	Not controlled

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) at concentrations <1%, this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Material Safety Data Sheet

OSHA Hazard: Irritant

HMIS Rating (Scale 0-4): Health = 2 Fire =1 Reactivity = 0

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Material Safety Data Sheet

Fire Hazard Data:

Fire: This product is not considered to be a fire hazard.

Auto-ignition: Unknown

Flash Point: Unknown

Flammability Limits (vol/vol%): Unknown

Lower: Unknown

Upper: Unknown

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated and in the dark. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
2-hydrazinopyridine dihydrochloride	No occupational limits established	No occupational limits established	No occupational limits established
MES	No occupational limits established	No occupational limits established	No occupational limits established

Material Safety Data Sheet

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: 2-HP Reagent

Physical Appearance: Clear colorless liquid

Percent Purity: 0.009%

Boiling Point: Not available

Melting Point: Not available

Specific gravity: Not available

Freezing Point: Not Available

Vapor pressure: Not available

Vapor density: Not available

Solubility: aqueous solutions

Evaporation rate: Not available

pH: 6.0

X. Stability and Reactivity

Chemical Stability:

This compound is considered stable under recommended storage conditions.

Materials / Chemicals to Be Avoided:

Strong oxidizing agents, Strong acids, Acid chlorides, Acid anhydrides

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide, nitrogen oxides (NO_x)

Hazardous Polymerization: Unknown

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Material Safety Data Sheet

XII. Ecological Information

Environmental effects: No data available.

Aquatic ecotoxicity/Conclusion/Summary: No data available.

Other adverse effects: No data available.

XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Ethylenediaminetetraacetic acid is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Not regulated

UN #: not regulated

Hazard Class: not regulated

Packaging Group: Not regulated

Label Statement: Not regulated

IATA

Proper Shipping Name: Not regulated

IATA UN Number: Not regulated

Hazard Class: Not regulated

Packaging Group: Not regulated

XV. Regulatory Information

United States

U.S. Federal regulations:

United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 –No SARA hazards.

Material Safety Data Sheet

EU Regulations

Classification: Not classified

XVI. Other Information

Key Legend Information:

N/A – Not Applicable
ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety and Health Administration
TLV – Threshold Limit Value
PEL – Permissible Exposure Limit
TWA – Time Weighted Average
STEL – Short Term Exposure Limit
NTP – National Toxicology Program
IARC – International Agency for Research on Cancer

XIII. Product and Company Identification

Product Name/Description: Affinity Magnetic Beads

Supplier: Solulink Inc
9853 Pacific Heights Blvd, Ste H.
San Diego, CA 92121
858.625.0670

Manufacturer: Solulink Inc
9853 Pacific Heights Blvd, Ste H
San Diego, CA 92121
858.625.0670

Product Number: # A-9202-001-14

Synonym: None

For Product Information/Emergency Phone Number:

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887(International)
Solulink-858.625.0670

II. Chemical Composition

Component Name: Affinity Magnetic Beads

Physical appearance: Magnetic agarose chromatography media (black gel slurry) containing encapsulated iron oxide particles in 15% ethanol/water suspension (v/w).

Material Safety Data Sheet

Ingredient Name	CAS Number	%	EC number	Classification
Ethanol	64-17-5	15.0 %	200-578-6	F; R11
Water	7732-18-5	60 %	Not classified	Not applicable
Iron (II, III) oxide	1317-61-9	0.5%	215-277-5	Not listed
Agarose-based chromatography media	No CAS #	24.5%	Not available	Not classified

III. Hazards Identification

OSHA/HSC Status: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Classification: R11

Physical/chemical hazards: Highly Flammable

Ingredient Ethanol:

HMIS Rating (Scale 0-4): Health = 1 Fire= 3 Reactivity = 0 Protection: See section 8

Emergency Overview and Health Hazards:

NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.

A. Emergency Overview:

Information Pertaining To Particular Dangers for Man and Environment: This reagent is not considered hazardous when recommend instructions are used. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Always use appropriate personal protective equipment.

Physical Appearance: Clear, colorless aqueous liquid

B. Potential Health Effects:

Acute Eye:

Direct contact may cause irritation with redness

Acute Skin:

Direct contact may cause skin irritation with redness.

Acute Inhalation:

Acute and chronic exposure may cause irritation of the mucous membranes. Symptoms may include tightness and difficulty breathing.

Acute ingestion:

Material Safety Data Sheet

Acute exposure may cause gastrointestinal irritation to the mouth and stomach.

IV. First Aid Measures

First Aid Measures for Accidental Exposure:

Eye Exposure:

In case of contact with eyes, immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eye lids.

Skin Exposure:

In case of skin contact, wash affected areas with soap and water and flush the area with copious amounts of water. Remove contaminated clothing.

Inhalation Exposure:

In inhaled, move to fresh air. If not breathing, administer artificial respiration. If breathing is difficult, give oxygen or artificial respiration by qualified personnel.

Ingestion Exposure:

If swallowed, rinse mouth out with water provided person is conscious. Never give fluids or induce vomiting if the victim is unconscious or having convulsions.

V. Fire Fighting Measures

Fire Hazard Data:

Autoignition temp: 789 °C

Flash point: 36 °C (closed cup)

Specific gravity: 0.989 g/cm³

Autoignition temp: 789 °C

Flash point: 36 °C (closed cup)

Vapor pressure: 43.6 mmHg (ethanol)

Vapor density: 1.52 g/l (ethanol)

Extinguishing Media: Use extinguishing media appropriate for surrounding fire

Special Fire Fighting Procedures: Use extinguishing media appropriate for surrounding fire such as water spray, carbon dioxide, dry powder. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Avoid inhalation of material or combustion by-products.

Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

Cleanup and Disposal of Spill:

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Use lab personal protective equipment such as gloves, lab coat, goggles and self-contained breathing apparatus. Wipe spills with absorbent wipes and discard any product, residue, disposable container or liner in full compliance with national or international regulations. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

VII. Handling and Storage

Handling/Storage:

Do not get into eyes, skin or clothing. Handle wearing gloves. Store material refrigerated. Keep container tightly sealed at 2-8°C.

VIII. Exposure Controls / Personal Protection

Exposure Guidelines:

Ingredient Name	ACGIH	NIOSH	OSHA-PELs
Ethanol	1900 mg/m ³	Not available	TWA: 1000 ppm 8 hour(s).
Agarose media	Not available	Not available	Not available
Iron oxide (II,III)	5 mg/M ³ TWA	Not available	10 ppm (Iron Oxide Fume as Fe)

Engineering Controls:

Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS. General room ventilation is satisfactory under anticipated use conditions.

Respiratory Protection:

Not required under anticipated use conditions.

Eye / Face Protection:

Wear appropriate safety glasses with side shields or chemical goggles as described by OSHA's eye and face protection regulations in 29CFR 1910.133 or European Standard EN166.

Skin Protection:

Wear chemical resistant gloves (such as latex or neoprene) and protective clothing to prevent skin contact.

IX. Physical and Chemical Properties

Component: Affinity Magnetic Beads

Physical Appearance: Black slurry suspension; color: colorless liquid, black suspension

Odor: slightly alcohol-like

Boiling Point: 77-78°C (ethanol)

Melting Point: May solidify at <0°C

Autoignition temp: 789°C

Material Safety Data Sheet

Flash point: 36 °C (closed cup)
Specific gravity: 0.989 g/cm³
Autoignition temp: 789 °C
Flash point: 36 °C (closed cup)
Vapor pressure: 43.6 mmHg (ethanol)
Vapor density: 1.52 g/l (ethanol)

X. Stability and Reactivity

Chemical Stability:

Stable. The product is stable under normal use conditions.

Conditions to Avoid:

Heat and flame.

Materials / Chemicals to Be Avoided:

Exposure to oxidizing agents such as hydrogen peroxide, perchloric acid; nitric acid; metal perchlorates, metal nitrates, sodium metals, potassium metals, acid anhydrides, acid chlorides

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide

Hazardous Polymerization:

Unknown

XI. Toxicological Information

United States

Acute toxicity/Conclusion/Summary: To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Chronic toxicity/Conclusion/Summary: Not available.

Carcinogenicity/Conclusion/Summary: Not available.

Mutagenicity/Conclusion/Summary: Not available.

Teratogenicity/Conclusion/Summary: Not available.

Reproductive toxicity/Summary: Not available

Europe

Chronic effects: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

XII. Ecological Information

Environmental effects: No known significant effects or critical hazards. Leaches through the soil or sediment at a moderate rate. Accumulates very little in bodies of living organisms.

Aquatic ecotoxicity/Conclusion/Summary: None known.

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

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XIII. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. These regulations apply to discharges of this substance.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

XIV. Transportation Information

DOT

Proper Shipping Name: Combustible liquid, n.o.s.

UN #: 1193

Hazard Class: Flammable

Packaging Group: Group III

Hazard Label Statement: None

PIH: None PIH

IATA

Non-hazardous for air transport

XV. Regulatory Information

United States

U.S. Federal regulations:

United States inventory (TSCA 8b): Ethanol

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: ethanol

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: ethanol: fire hazard (acute) health hazard, delayed (chronic) health hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: This product is listed.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

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EU Regulations

EC Classification: R11, highly flammable, Xi -irritant

Risk Phrases: R11-highly flammable
R36 irritating to eyes
R37 irritating to respiratory system
R38 irritating to skin

XVI. Other Information

Key Legend Information:

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ND – Not Determined
ACGIH – American Conference of Governmental Industrial Hygienists
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The information contained herein is based on the data available to us and is believed to be correct. However Solulink Incorporated makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof be obtained from the use thereof.