Material Safety Data Sheet

Material name:

cDNA Hybridization Buffer ID: C-279

SECTION 1- Chemical Product and Company Identification

Manufacturer Information

Microarrays Inc
601 Genome Way
Huntsville, AL 35806

Phone: (256) 327-0544
Emergency # 24 Hr CHEMTREC U.S. (800) 424-9300
24 Hr CHEMTREC International (703) 527-3887

SECTION 2- Hazards identification

Emergency Overview

This product is a clear, non-flammable liquid with a soap-like odor. This product may be irritating to the eyes, respiratory system, and skin. May be harmful if absorbed through the skin. Exposure may lead to central nervous system effects, characterized by headache, dizziness, nausea, and drowsiness. Use methods suitable to fight surrounding fire.

Potential Health Effects: Eyes

This product may cause irritation to the eyes.

Potential Health Effects: Skin

Contact with this product may cause irritation to the skin. A componenet of this product may be absorbed through the skin

Potential Health Effects: Ingestion

May be harmful if swallowed. May cause central nervous system effects, characterized by headache, dizziness, nausea, and drowsiness.

Potential Health Effects: Inhalation

Inhalation of mists or vapors of this product may be irritating to the respiratory system. May cause central nervous system effects. characterized by headache, dizziness, nausea, and drowsiness.

HMIS Ratings: Health: 2* Fire: 1 Physical Hazard: 0 Pers. Prot.: gloves, goggles
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

SECTION 3- Composition / Information on Ingredients

CAS #	Component	Percent
72-12-7	Formamide	30-40
9011-18-1	Dextran sulfate sodium	10-15
9048-46-8	Albumin, bovine, fraction v	0.1-1
26763-19-9	Polyadenylic acid (5'), potassium	0.1-1
7647-14-5	Sodium chloride	0.1-1
proprietary	Human oligomers	0.1-1
6132-04-3	Citrate, sodium, dihydrate	0.1-1
151-21-3	Sodium lauryl sulfate	0.1-1

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under the criteria specified in 29 CFR 1910.1200 (Hazard Communication).
This product is considered a controlled product under the Canadian Controlled Products Regulations.
This product contains a component associated with toxic teratogenic and reproductive effects (See Section 11: Toxicological Information.)
This product contains materials derived from biological origins.

SECTION 4- First aid measures

First Aid: Eyes

In case of contact, immediately flush eyes with large amounts of water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

First Aid: Skin

Wash area of contact thoroughly with soap and water. Seek medical attention if symptoms develop or persist. Launder contaminated clothing before reuse.

First Aid: Ingestion

Get immediate medical attention. Do not induce vomiting unless directed to do so by medical personnel

First Aid: Inhalation

If inhaled, remove person to fresh air. If symptoms develop or persist, get medical attention.

First Aid: Notes to Physician

Provide general supportive measures (warmth, rest)

SECTION 5 - Fire fighting measures

General Fire Hazards

See Section 9 for Flammability Properties.

Non-flammable but may burn at elevated temperatures.

Hazardous Combustion Products

Carbon dioxide, carbon monoxide, nitrogen oxides, and other hydrocarbon fragments.

Extinguishing Media

Water fog, foam, dry chemical, or carbon dioxide.

Fire Fighting Equipment/Instructions

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Cool fire-exposed containers with water.

NFPA Ratings: Health: 2 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

SECTION 6 - Accidental release measures

Containment Procedures

Contain the discharged material.

Clean-Up Procedures

Clean-up personnel should wear suitable protective equipment. Collect spilled material with an inert absorbent such as sand or vermiculite. Place in properly labeled closed container. Flush area with water to remove trace residue.

Evacuation Procedures

Keep unnecessary personnel away.

Special Procedures

Clean up and dispose of waste in accordance with all Federal, State and local regulations.

SECTION 7 - Handling and Storage

Handling Procedures

Avoid contact with skin and eyes. Avoid inhalation of mists or vapors. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Mix well before using.

Storage Procedures

Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials.

SECTION 8 - Exposure controls / Personal protection

Exposure Guidelines

A: General Product Information

Follow all applicable exposure limits.

B: Component Exposure Limits

Formamide (75-12-7)

ACGIH:	10 ppm TWA
	Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA	20 ppm TWA; 30 mg/m^3 TWA
(Vacated):	30 ppm STEL; 45 mg/m^3 STEL
NIOSH:	10 ppm TWA; 15 mg/m^3 TWA
	Potential for dermal absorption
Alberta:	10 ppm TWA; 18 mg/m^3 TWA
	Substance may be readily absorbed through intact skin.
British	10 ppm TWA
Columbia:	Skin notation
Manitoba:	20 ppm TWA; 30 mg/m^3 TWA
	30 ppm STEL; 45 mg/m^3 STEL

New	10 ppm TWA; 18 mg/m^3 TWA
Brunswick:	Skin - potential for cutaneous absorption
NW	20 ppm TWA; 37 mg/m^3 TWA
Territories:	30 ppm STEL; 55 mg/m^3 STEL
Nova Scotia:	10 ppm TWA
	Skin - potential significant contribution to overall exposure by the cutaneous route
Nunavut:	20 ppm TWA; 37 mg/m^3 TWA
	30 ppm STEL; 55 mg/m^3 STEL
Ontario:	10 ppm TWAEV; 15 mg/m^3 TWAEV
	Absorption through skin, eyes, or mucous membranes
Quebec:	10 ppm TWAEV; 18 mg/m^3 TWAEV
	Skin designation
Saskatchewan:	18 mg/m^3 TWA; 10 ppm TWA
	27 mg/m^3 STEL; 15 ppm STEL
Yukon:	20 ppm TWA; 30 mg/m^3 TWA
	30 ppm STEL; 45 mg/m^3 STEL

Engineering Controls

Use local exhaust ventilation to keep exposures to a minimum.

PERSONAL PROTECTIVE EQUIPMENT Personal Protective Equipment: Eyes/Face

Wear chemical goggles; face shield if splashing is possible.

Personal Protective Equipment: Skin

Use impervious gloves when handling. Use of protective coveralls and long sleeves is recommended to prevent skin contact.

Personal Protective Equipment: Respiratory

When exposure to aerosols or vapors is possible, use a NIOSH respirator approved organic vapor respirator.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

SECTION 9 - Physical and chemical properties

Appearance: **Clear**
Physical State: **Liquid**
Vapor Pressure: **Not determined**
Boiling Point: **Not determined**
Solubility (H2O): **Not determined**
Molecular Weight: **Mixture**
Auto Ignition: **Not available**

Flash Point Method: Open cup
Upper Flammability limit (UFL): Not determined

Odor: **Soap**
pH: **8**
Vapor Density: **Not determined**
Melting Point: **Not applicable**
Freezing Point: **Not determined**
Density: **1 gm/cm^3**
Flash Point: **154°C (309°F)**
(Formamide)
Lower Flammability Limit (LFL): Not determined
OSHA Flammability Classification: Non-flammable

SECTION 10 - Chemical stability and reactivity information

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Keep away from high temperatures, ignition sources, and incompatible materials.

Incompatibility

Avoid contact with oxidizing agents, acids, bases, iodine, pyridine, and sulfur trioxide. Formamide can react with copper, brass, lead, ad rubber.

Hazardous Decomposition

Thermal decomposition may produce carbon monoxide, carbon dioxide, nitrogen oxides, and other toxic compounds.

Possibility of Hazardous Reactions

Will not occur.

SECTION 11 - Toxicological information

Acute Dose Effects

A: General Product Information

No additional information. Exposure may lead to central nervous system effects, characterized by headache, dizziness, nausea, and drowsiness. Prolonged or acute exposure may cause liver or kidney damage.

This product contains materials derived form biological origin that may contain low levels of infectious agents, and should be handled in keeping with safe laboratory practices.

B: Component Analysis - LD50/LC50

Formamide (75-12-7)
Inhalation LC50 Rat: 0.07 mg/L/4H; Oral LD50 Rat: 3200 mg/kg; Dermal LD50 Rat:> 17,ooo mg/kg; Dermal LD50 Rabbit: 17,000 mg/kg

Dextran sulfate sodium (9011-18-1)
Oral LD50 Rat: 20,600 mg/kg

Sodium chloride (7647-14-5)
Inhalation LC50 Rat: >42 g/m^3/4H; Oral LD50 Rat: 3 g/kg; Dermal LD50 Rat:> 10 g/kg

Sodium lauryl sulfate (151-21-3)
Inhalation LC50 Rat: >3,900 mg/m^3/1H; Oral LD50 Rat: 1288 mg/kg

Carcinogenicity

A: General Product Information

No information available for product.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP

Teratogenicity

No information available or product.
Formamide has been reported to cause birth defects in experimental animals following oral and dermal administration.

Other Toxicological Information

This product contains a substance(s) that is a possible reproductive hazard. This information is based on high dose tests on laboratory animals however, the substance(s) is in this product at <1%.

SECTION 12 - Ecological information

Ecotoxicity

A: General Product Information

No information available for product. Contains a component that is toxic to aquatic life.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Formamide (75-12-7)

Test / Species		Conditions
96 Hr LC50 Bradydanio rerio	9135 mg/L	static
96 Hr LC50 Leuciscus idus	4600 mg/L	static
72 Hr LC50 Scenedesmus subpicatus	>500 mg/L	
96 Hr LC50 Scenedesmus subpicatus	>500 mg/L	
17 Hr EC50 Pseudomonas putida	>10,000 mg/L	
48 Hr EC50 Daphnia magna	>500 mg/L	

Sodium chloride (7647-14-5)

Test / Species		Conditions
96 Hr LC50 Lepomis macrochirus	9675 mg/L	flow-through
96 Hr LC50 Lepomis macrochirus	12,946 mg/L	static
96 Hr LC50 Pimephales promelas	7650 mg/L	static
48 Hr EC50 Daphnia magna	1000 mg/L	

Sodium lauryl sulfate (151-21-3)

Test / Species		Conditions
96 Hr LC50 Pimephales promelas	10.2 mg/L	fry
96 Hr LC50 Pimephales promelas	17 mg/L	juvenile
96 Hr LC50 Pimephales promelas	22.5 mg/L	adult
96 Hr LC50 Oncorhynchus mykiss	4.6 mg/L	static
96 Hr LC50 Bradydanio rerio	7.97 mg/L	flow-through
96 Hr LC50 Lepomis macrochirus	4.06-5.75 mg/L	static
96 Hr LC50 Pimephales promelas	6.6-8.5 mg/L	
96 Hr LC50 Poecilia reticulata	13.5-18.2 mg/L	semi-static
72 Hr EC50 Scenedesmus subpicatus	53 mg/L	
96 Hr EC50 Scenedesmus subpicatus	30-100 mg/L	
96 Hr EC50 Scenedesmus subpicatus	117 mg/L	
5 min EC50 Photobacterium phosphoreum	1.19 mg/L	
15 min EC50 Photobacterium phosphoreum	0.72 mg/L	
30 min EC50 Photobacterium phosphoreum	0.46 mg/L	
48 Hr EC50 Daphnia magna	1.8 mg/L	

Environmental fate

No information available for product

SECTION 13 - Disposal considerations

US EPA Waste Number & Descriptions

A: General Product Information

No additional information. You must test your waste using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Waste must be handled in accordance with all federal, state, provincial, and local regulations.

See Section 7 for Handling Procedures.

See Section 8 for Personal Protective Equipment recommendations.

SECTION 14 - Transportation information

US DOT Information

Shipping Name: Not regulated as a hazardous material.

TDG Information

Shipping Name: Not regulated as a dangerous good.

SECTION 15 - Regulatory information

US Federal Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory or are exempt from TSCA Inventory requirements

B: Component Analysis

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Formamide	75-12-7	Yes	Yes	Yes	Yes	Yes	Yes

Canadian WHMIS Information

A: General Product Information

This product has been classified in accordance with the hazaed criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by CPR.

All components of this product are listed on, or are automatically included as “substance occurring in nature” on, or are exempted from the requirements to be listed on the Canadian Domestic Substances List (DSL).

WHMIS Classification:

Class D2A: Very Toxic Material
Class D2B: Toxic Material

B: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

CAS #	Component	Minimum concentration
75-12-7	Formamide	0.1%

Additional Regulatory Information

A: General Product Information

No additional information

B: Component Analysis - Inventory

CAS #	Component	TSCA	DSL	EINECS
75-12-7	Formamide	Yes	Yes	Yes
9011-18-1	Dextran sulfate sodium	Yes	Yes	No
9048-46-8	Albumin, bovine, fraction v	Yes	Yes	Yes
26763-19-9	Polyadenylic acid (5’), potassium	No	No	No
7647-14-5	Sodium chloride	Yes	Yes	Yes
6132-04-3	Citrate, sodium, dihydrate	No	No	No
151-21-3	Sodium lauryl sulfate	Yes	Yes	Yes

SECTION 16 - Other information

Other Information

Reasonable care has been taken in the preparation of this information, but Microarrays Inc makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. Microarrays Inc makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

MSDS History

New MSDS. 3/13/2012. All information as detailed by orignal manufacturer Corning Inc. - Life Sciences, Big Flats, NY 14814

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. DSL = Canadian Domestic Substance List. EINECS = European Inventory of New and Existing Chemical Substances. EPA = Environmental Protection Agency. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Material Identification System. IARC = International Agency for Research on Cancer. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NA = Not available or Not Applicable. SARA = Superfund Amendments and Reauthorization Act. TLV = Threshold Limit Value. TSCA = Toxic Substance Control Act. WHMIS = Workplace Hazardous Materials Information System.

Microarrays Inc