

Issuing Date 29-Nov-2017

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Revision Number 2

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product identifier**

**Product Name** DX-LNA1, Library Normalization Diluent

**Other means of identification**

**Product Code(s)** 15035473

**Synonyms** None

**Recommended use of the chemical and restrictions on use**

**Recommended use** reagent

**Details of the supplier of the safety data sheet**

**Manufacturer Address**

illumina, Inc.  
5200 Illumina Way  
San Diego, CA 92122 USA  
www.illumina.com

**Company Phone Number**

1-858-809-ILMN  
1-858-202-4566

**E-mail address**

SDS@illumina.com

**Emergency telephone number**

**24 Hour Emergency Phone Number** 1-760-476-3962

## 2. HAZARDS IDENTIFICATION

**GHS Classification**

**OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Carcinogenicity	Category 2
Reproductive toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 2

**Label elements**

**Emergency Overview**

**Signal word**

Danger

**Hazard statements**

Suspected of causing cancer  
May damage fertility or the unborn child  
May cause damage to organs through prolonged or repeated exposure

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**Appearance** colorless liquid      **Physical state** Liquid      **Odor** Odor: Contains 2-Mercaptoethanol

**Precautionary Statements - Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Not applicable

**Other Information**

Unknown acute toxicity      10.8 % of the mixture consists of ingredient(s) of unknown toxicity

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Chemical name	CAS No	Weight-%	Trade Secret
Formamide	75-12-7	5 - 10	*
2-Mercaptoethanol	60-24-2	<0.1	*

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

### 4. FIRST AID MEASURES

**Description of first aid measures**

**General advice**

Treat symptomatically. Use first aid treatment according to the nature of the injury. Remove and isolate contaminated clothing and shoes.

**Eye contact**

In case of contact with substance, immediately flush skin or eyes with running water for at test\_tech\_name

	least 20 minutes.
<b>Skin Contact</b>	Wash skin with soap and water. Get medical attention if irritation develops and persists.
<b>Inhalation</b>	If symptomatic, move to fresh air. Get medical attention if symptoms persist. Move victim to fresh air.
<b>Ingestion</b>	Get medical advice/attention.
<b>Self-protection of the first aider</b>	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**Most important symptoms and effects, both acute and delayed**

<b>Symptoms</b>	May damage fertility or the unborn child. Persons with impaired reproductive function may be more susceptible to the effects of this material. May cause cancer. May cause damage to organs through prolonged or repeated exposure.
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**Indication of any immediate medical attention and special treatment needed**

<b>Note to physicians</b>	Persons with impaired reproductive function may be more susceptible to the effects of this material.
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**5. FIRE-FIGHTING MEASURES****Suitable extinguishing media**

Dry chemical, CO<sub>2</sub>, water spray or regular foam, Water spray, fog or regular foam, Move containers from fire area if you can do it without risk, Dike fire-control water for later disposal

**Unsuitable extinguishing media**

Do not scatter spilled material with high pressure water streams.

**Specific hazards arising from the chemical**

None known.

**Hazardous combustion products**

Carbon oxides. Ammonia. Nitrogen oxides (NO<sub>x</sub>). Hydrogen cyanide.

**Explosion data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Do not touch or walk through spilled material. Stop leak if you can do it without risk. Avoid breathing dust/fume/gas/mist/vapors/spray.

**For emergency responders** Use personal protection recommended in Section 8. Keep unnecessary personnel away.

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**Environmental precautions**

**Environmental precautions** Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

**Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so. Prevent runoff from entering drains, sewers, or streams.

**Methods for cleaning up** Use personal protective equipment as required. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13). Large spill. Prevent runoff from entering drains, sewers, or streams. Dike far ahead of liquid spill for later disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

**7. HANDLING AND STORAGE**

**Precautions for safe handling**

**Advice on safe handling** Use personal protective equipment as required. Handle in accordance with good industrial hygiene and safety practice. Do not breathe vapor.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** Keep container tightly closed. Keep/store only in original container. Store away from incompatible materials.

**Incompatible materials** Strong oxidizing agents.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**Exposure Guidelines**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formamide 75-12-7	TWA: 10 ppm Skin	(vacated) TWA: 20 ppm (vacated) TWA: 30 mg/m <sup>3</sup> (vacated) STEL: 30 ppm (vacated) STEL: 45 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 15 mg/m <sup>3</sup>

*NIOSH IDLH Immediately Dangerous to Life or Health*

**Other Information** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Appropriate engineering controls**

**Engineering Controls** Showers  
Eyewash stations  
Ventilation systems.

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**Individual protection measures, such as personal protective equipment**

<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Skin and body protection</b>	Wear chemical-resistant gloves, footwear and protective clothing appropriate for risk of exposure. Contact glove manufacturer for specific information.
<b>Respiratory protection</b>	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
<b>General Hygiene Considerations</b>	When using do not eat, drink or smoke. Wash hands thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing is recommended.

<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>
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**Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid
<b>Appearance</b>	colorless liquid
<b>Odor</b>	Odor: Contains 2-Mercaptoethanol
<b>Color</b>	colorless

<b><u>Property</u></b>	<b><u>Values</u></b>	<b><u>Remarks • Method</u></b>
<b>pH</b>	No data available	
<b>Melting point / freezing point</b>	No data available	
<b>Boiling point / boiling range</b>		
<b>Flash point</b>		
<b>Evaporation rate</b>	No data available	
<b>Flammability (solid, gas)</b>	No data available	
<b>Flammability Limit in Air</b>		
<b>Upper flammability or explosive limits</b>	No data available	
<b>Lower flammability or explosive limits</b>	No data available	
<b>Vapor pressure</b>	No data available	
<b>Vapor density</b>	No data available	
<b>Specific gravity</b>	No data available	
<b>Water solubility</b>	No data available	
<b>Solubility in other solvents</b>	No data available	
<b>Partition coefficient</b>	No data available	
<b>Autoignition temperature</b>	No data available	
<b>Decomposition temperature</b>	No data available	
<b>Kinematic viscosity</b>	No data available	
<b>Dynamic viscosity</b>	No data available	
<b>Explosive properties</b>	No unusual fire or explosion hazards noted.	
<b>Oxidizing properties</b>	No data available	

**Other information**

<b>Softening point</b>	No data available
<b>Molecular weight</b>	No data available
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VOC Content (%) No data available  
 Liquid Density No data available  
 Bulk density No data available

## 10. STABILITY AND REACTIVITY

### Reactivity

#### Chemical stability

Stable under normal conditions. Stable under recommended storage conditions.

#### Possibility of Hazardous Reactions

None under normal processing.

#### Hazardous polymerization

Hazardous polymerization does not occur.

#### Conditions to avoid

None known.

#### Incompatible materials

Strong oxidizing agents.

#### Hazardous decomposition products

None known based on information supplied.

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### Product Information

<b>Inhalation</b>	Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Skin Contact</b>	Prolonged contact may cause redness and irritation.
<b>Ingestion</b>	No harmful effects expected in amounts likely to be ingested by accident.

#### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Formamide 75-12-7	= 5577 mg/kg ( Rat ) > 5000 mg/kg ( Rat )	-	> 3900 ppm ( Rat ) 6 h

### Information on toxicological effects

**Symptoms** Suspected of causing cancer. May damage fertility or the unborn child.

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Skin corrosion/irritation** Not classified.  
**Serious eye damage/eye irritation** Not classified.  
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<b>Sensitization</b>	Not classified.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	Suspected of causing cancer
<b>Reproductive toxicity</b>	May damage fertility or the unborn child.
<b>STOT - single exposure</b>	Not classified.
<b>STOT - repeated exposure</b>	May cause damage to organs through prolonged or repeated exposure.
<b>Chronic toxicity</b>	Contains a known or suspected reproductive toxin. May cause adverse effects on the bone marrow and blood-forming system.
<b>Target organ effects</b>	Central nervous system, Eyes, Reproductive System, Respiratory system, Skin, blood.
<b>Aspiration hazard</b>	Not classified.
<b>Other adverse effects</b>	No information available.

**Numerical measures of toxicity - Product Information**

**Unknown acute toxicity** 10.8 % of the mixture consists of ingredient(s) of unknown toxicity

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

1.7 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
Formamide 75-12-7	500 mg/L: EC50 72 h Desmodesmus subspicatus 500 mg/L: EC50 96 h Desmodesmus subspicatus	4600 - 9300 mg/L: LC50 96 h Leuciscus idus static 9135 mg/L: LC50 96 h Brachydanio rerio static	500 mg/L: EC50 48 h Daphnia magna
Sodium chloride 7647-14-5	-	4747 - 7824 mg/L: LC50 96 h Oncorhynchus mykiss flow-through 5560 - 6080 mg/L: LC50 96 h Lepomis macrochirus flow-through 6020 - 7070 mg/L: LC50 96 h Pimephales promelas static 6420 - 6700 mg/L: LC50 96 h Pimephales promelas static 12946 mg/L: LC50 96 h Lepomis macrochirus static 7050 mg/L: LC50 96 h Pimephales promelas semi-static	340.7 - 469.2 mg/L: EC50 48 h Daphnia magna Static 1000 mg/L: EC50 48 h Daphnia magna
2-Mercaptoethanol 60-24-2	12 mg/L: EC50 72 h Desmodesmus subspicatus	46 - 100 mg/L: LC50 96 h Leuciscus idus static	1.52 mg/L: EC50 48 h Daphnia magna

**Persistence and degradability**

Readily biodegradable.

**Bioaccumulation**

Chemical name	Partition coefficient
Formamide 75-12-7	-0.82
2-Mercaptoethanol 60-24-2	-0.056

**Mobility**

No data available.

**Other adverse effects**

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No data available

### 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

<b>Disposal of wastes</b>	Disposal should be in accordance with applicable regional, national and local laws and regulations.
<b>Contaminated packaging</b>	Do not reuse container. Disposal should be in accordance with applicable regional, national and local laws and regulations.

### 14. TRANSPORT INFORMATION

<b><u>DOT</u></b>	Not regulated
<b><u>TDG</u></b>	Not regulated
<b><u>MEX</u></b>	Not regulated
<b><u>ICAO (air)</u></b>	Not regulated
<b><u>IATA</u></b>	Not regulated
<b><u>IMDG</u></b>	Not regulated
<b><u>RID</u></b>	Not regulated
<b><u>ADR</u></b>	Not regulated
<b><u>ADN</u></b>	Not regulated

### 15. REGULATORY INFORMATION

#### International Inventories

<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Does not comply
<b>ENCS</b>	Does not comply
<b>IECSC</b>	Complies
<b>KECL</b>	Does not comply
<b>PICCS</b>	Complies
<b>AICS</b>	Complies
<b>INSQ</b>	This product complies with INSQ

#### Legend:

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

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KECL - Korean Existing and Evaluated Chemical Substances  
 PICCS - Philippines Inventory of Chemicals and Chemical Substances  
 AICS - Australian Inventory of Chemical Substances  
 INSQ - Mexican National Inventory of Chemical Substances

**US Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**

<b>Acute health hazard</b>	No
<b>Chronic Health Hazard</b>	Yes
<b>Fire hazard</b>	No
<b>Sudden release of pressure hazard</b>	No
<b>Reactive Hazard</b>	No

**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**US State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

Chemical name	New Jersey	Massachusetts	Pennsylvania
Formamide 75-12-7	X	X	X
Sodium phosphate dibasic 7558-79-4	X	X	X
2-Mercaptoethanol 60-24-2	X	X	X

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

**16. OTHER INFORMATION**

<b><u>NFPA</u></b>	<b>Health hazards</b> 2	<b>Flammability</b> 0	<b>Instability</b> 0	<b>Physical and Chemical Properties</b> -
<b><u>HMIS</u></b>	<b>Health hazards</b> 2	<b>Flammability</b> 0	<b>Physical hazards</b> 0	<b>Personal protection</b> X

**Prepared By** Illumina Inc.  
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**End of Safety Data Sheet**

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