

1. Product and Company Identification

Material name Ligation Clean-up Enzyme
Revision date 04-04-2012
Version # 01
CAS # Mixture
Product code 100066
Product use Industrial use.
Manufacturer/Supplier NanoString Technologies
 530 Fairview Avenue North Suite 2000 Seattle, WA 98109
 safetycommittee@nanosting.com
 Contact Person: Safety Committee

Telephone number 206-378-6266
Emergency Emergency telephone 206-378-6266

2. Hazards Identification

Physical state Liquid.
Appearance Clear liquid.
Emergency overview CAUTION!

 May cause eye irritation.
OSHA regulatory status This product is hazardous according to OSHA 29 CFR 1910.1200.
Potential health effects
Eyes May cause eye irritation.
Skin Prolonged contact may cause dryness of the skin.
Inhalation Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
Ingestion No harmful effects expected in amounts likely to be ingested by accident.
Potential environmental effects The product is not expected to be hazardous to the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Glycerol	56-81-5	40 - 60

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures
Eye contact Immediately flush eye(s) with plenty of water. Remove any contact lenses and open eyelids wide apart. Get medical attention promptly if symptoms occur after washing.
Skin contact Wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.
Inhalation Move to fresh air. Get medical attention if any discomfort continues.
Ingestion Rinse mouth. Get medical attention if any discomfort continues.
Notes to physician Treat symptomatically.

5. Fire Fighting Measures

Flammable properties No unusual fire or explosion hazards noted.
Extinguishing media
Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.
Fire fighting equipment/instructions Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Hazardous combustion products Carbon oxides.

6. Accidental Release Measures

Personal precautions Use Personal Protective Equipment recommended in Section 8 of the MSDS.
Environmental precautions No specific precautions.
Methods for cleaning up Wipe up with absorbent material (e.g. cloth, fleece).

7. Handling and Storage

Handling Use personal protective equipment as required. Observe good industrial hygiene practices.
Storage Keep in original container.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Glycerol (56-81-5)	TWA	10 mg/m ³	Mist.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Glycerol (56-81-5)	PEL	5 mg/m ³ 15 mg/m ³	Respirable fraction. Total dust.

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value	Form
Glycerol (56-81-5)	TWA	10 mg/m ³	Mist.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Glycerol (56-81-5)	TWA	3 mg/m ³ 10 mg/m ³	Respirable mist. Mist.

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Glycerol (56-81-5)	TWA	10 mg/m ³	Mist.

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value	Form
Glycerol (56-81-5)	TWA	10 mg/m ³	Mist.

Mexico. Occupational Exposure Limit Values

Components	Type	Value	Form
Glycerol (56-81-5)	TWA	10 mg/m ³	Mist.

Engineering controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye / face protection Wear safety glasses with side shields (or goggles).
Skin protection Wear protective gloves. Lab coat.
Respiratory protection Not normally needed.
General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance Clear liquid.
Color Colorless.
Odor Faint.
Odor threshold Not available.
Physical state Liquid.
Form Liquid.
pH Not available.

Melting point	Not available.
Freezing point	Not available.
Boiling point	Not available.
Flash point	379.4 °F (193 °C)
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	0.9 %
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Specific gravity	Not available.
Solubility (water)	Soluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	None known.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
Ligation Clean-up Enzyme (Mixture)	Acute Oral LD50 Rabbit: 90909.0909 mg/kg estimated Acute Other LD50 Mouse: 74263.1142 mg/kg estimated

Acute effects	May cause eye irritation.
Local effects	Prolonged contact may cause dryness of the skin.
Sensitization	None known.
Chronic effects	None known.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Mutagenicity	None known.
Reproductive effects	None known.

12. Ecological Information

Ecotoxicity	Not expected to be harmful to aquatic organisms.
Persistence and degradability	No data available.
Bioaccumulation / Accumulation	No data available.
Partition coefficient (n-octanol/water)	Not available.
Mobility in environmental media	The product is miscible with water. May spread in water systems.

13. Disposal Considerations

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification(40 CFR 707, Subpt. D)

Not regulated.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)
No

Section 311/312 (40 CFR 370)
Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)
Not controlled

Canadian regulations This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS status Non-controlled

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - Massachusetts RTK - Substance: Listed substance

Glycerol (CAS 56-81-5) Listed.

US - New Jersey RTK - Substances: Listed substance

Glycerol (CAS 56-81-5) Listed.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

Glycerol (CAS 56-81-5) Listed.

16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings
Health: 1
Flammability: 0
Instability: 0

Disclaimer This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

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