SAFETY DATA SHEET (SDS)

Classification in accordance with Global Harmonizing System (GHS)
Note: This product is deemed non-hazardous

SECTION 1–Identification Of The Substance/Mixture And Of The Company Undertaking

Product Name:	NEBNext® High-Fidelity 2X PCR Master Mix
Product Number:	NEB #E7375
Relevant identified uses of mixture and uses advised against:	Enzyme solution: avoid concentration of components by evaporation.
Supplier/producer/manufacturer information:	New England BioLabs 240 County Road Ipswich, MA USA 01938 Telephone: (978) 927-5054 or (800) 632-5227 FAX: (978) 921-1350 E-mail: info@neb.com
Emergency telephone number:	(978) 927-5054 Monday to Friday 9am-8pm EST (800) 632-5227 Monday to Friday 9am-8pm EST

SECTION 2–Hazards Identification

Classification in accordance with Global Harmonizing System (GHS) and Classification Labeling and Packaging Regulation (EC) No 1272/2008 (CLP).

Health

Acute toxicity, Inhalation (Category 0)	May be harmful if inhaled.
Acute toxicity, Oral (Category 0)	May be harmful if swallowed.
Acute toxicity, Dermal (Category 0)	May be harmful in contact with skin.
Skin irritant, (Category 3)	Causes skin irritation.
Eye irritant, (Category 2A)	Causes serious eye irritation.
Mutagenicity	Unknown
Carcinogenicity	Unknown
Reproductive/Development	Unknown
Target Organ Toxicity, 2	May cause target organ kidney damage prolonged or repeated exposure (see section 8 for exposure limits).
Environment	Unknown

Labeling in accordance with Global Harmonizing System (GHS)
Hazard Pictogram

Health: Xi

Target Organ Toxicity

Irritation (eye + skin)
Category, 2A

Signal Word: WARNING
Bulks (> 10 ml) require health target organ toxicity label.

H & P Statements	Code	Health Hazard Statements	Hazard Class	Exposure Route/Limits and /Conditions for Use		
Hazard:	H303 + H313 + H333	May be harmful if swallowed, in contact with skin or if inhaled.	GHS 3.1	Irritation		
	H319	Causes serious eye irritation.	GHS 3.3	Irritation		
	H373	May cause damage to kidney through prolonged or repeated exposure.	GHS 3.9	Target Organ: Kidney	Repeated Exposure	Use in a well vented area.
Prevention:	P260	Do not breathe mist, vapors or spray.	GHS 3.9	Target Organ: Kidney	Repeated Exposure	Use in a well vented area.
	P262	Do not get in eyes, on skin, or on clothing.	GHS 3.3	Irritation		
	P280	Wear protective gloves/protective clothing/eye protection.	GHS 3.2	Irritation		
Response:	P301 + P330 + P331	If swallowed: Rinse mouth. Do not induce vomiting.	GHS 3.1	Ingestion		
	P303 + P352	If on skin: gently wash the area with soap and water	GHS 3.2	Irritation		
	P304 + P361 + P353 + P340	If inhaled: Rinse mouth. Do not induce vomiting. Remove person to fresh air and keep comfortable for breathing.	GHS 3.1	Irritation		
	P305 + P351 + P338	If in eyes: remove contact lenses and wash with copious amounts water.	GHS 3.3	Irritation		Buffered saline eyes wash. Test for pH, and continue flushing for at least 15 minutes.
	P314	Get advice/attention if you feel unwell.	GHS 3.9	Target Organ: Kidney	Repeated Exposure	Use in a well vented area.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.	GHS 3.2	Irritation		
Storage:	P403 + P233 + P411	Store in a well-ventilated place. Store in closed container. Store at temperatures not exceeding -20°C.	GHS 3.1 GHS 3.8	Target Organ: Kidney	Repeated Exposure	Use in well vented area.
Disposal:	P501	Dispose of contents/container observing all international, national, federal, state and local environmental regulations.	GHS 3.1			

Other hazards:

PBT & vPvB: See section 12 for more detailed information on PBT and vPvB.

SECTION 3–Composition/Information On Ingredients

Mixture: Classification according to Global Harmonizing System (GHS)

Name Of Compound Substance	CAS No	EINECS No	Mw	Formula	W/V %
Glycerol	56-81-5	200-289-5	92.09	C3H8O3	10%
DMSO	67-68-5	200-664-3	78.13	CH32SO	8%
Tris	77-86-1	201-064-4	121.14	(HOCH2)3CNH2	2.0%
Proprietary Component	Proprietary Component	Proprietary Component	Proprietary Component	Proprietary Component	1.5 - 2.5%

The remaining compound in this product is non-hazardous (water).

Impurities: None detected.

References to other sections:
See section 8 for exposure limits.
See section 16 for full text of R-, H- and EUH- phrases.

SECTION 4–First Aid Measures

Description of first aid measures:

Eye: Eye irritation: Remove contact lenses, hold eye lids open and flush eye with plenty of water (or buffered saline eye wash) for at least 15 minutes. Check pH of tears with indicator paper and continue flushing, if necessary. If eye irritation occurs, get medical advice/attention.

Skin: Skin irritation: Remove contaminated clothing and wash before reuse. Gently wash the contaminated area with plenty of soap and water for at least 15 minutes. If skin irritation or rash develops, get medical advice/attention.

Inhalation: Nasal/lung irritation: Move person to fresh air. If not breathing clear airway and start cardiopulmonary resuscitation (CPR), avoid mouth-to-mouth; give artificial respiration and get medical attention. If respiratory irritation, dizziness, nausea occurs, get medical advice/attention.

Ingestion: Internal (mouth, throat, stomach, etc.) irritation: Rinse mouth with water. Do not induce vomiting. If feeling unwell, get medical advice/attention.

Most important symptoms and effects.

ACUTE

Inhalation: Cough, shortness of breath.
Skin: Redness, rash, dry skin, and itching.
Eye: Redness and soreness.
Ingestion: Malaise, dizziness, and nausea.

CHRONIC Not Available

Note to Physicians: Upon ingestion, do not induce vomiting.
Specific Treatments: Upon ingestion, drink 2-4 cups of water or milk.

SECTION 5–Fire Fighting Measures

Suitable extinguishing media:	Use water spray alcohol resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media:	None
Special hazards arising from the mixture:	Avoid concentration to solids by evaporation.
Advice for firefighters:	Wear self-contained breathing apparatus while extinguishing the fire Avoid concentration to solids by evaporation.

SECTION 6–Accidental Release Measures

Personal precautions and protective equipment (PPE) and emergency procedures.

Personal precautions and protective equipment (PPE)	Depending on the extent of release, consider the need for trained firefighters / emergency responders with adequate PPE for cleaning up. Keep unnecessary people away. Wear proper PPE.
Environmental precautions:	Prevent spills from entering storm sewers or drains, Do not let mixture enter storm drains, sewer or waterway. Prevent release to the environment; (see Section 6 for spill/release information).

Methods and material for containment and cleaning up.

How to Contain Spill:	Absorb onto combustible material (sawdust or absorbent paper).
Cleaning-up Methods:	Shovel/sweep up debris and store in a sealed plastic container. Discard in trash slated only for incineration.
Additional Information Pertaining to the Spill:	Bulk materials and spill debris (>10 ml) should be disposed of as hazardous waste.

Reference to other sections:
See section 8 for further information on protective clothing and equipment, see section 13 for advice on waste disposal.

SECTION 7–Handling And Storage

Precautions for safe handling:	Do not get in eyes or on skin, breathe vapors or mists.
General hygiene advice:	Use good industrial hygiene and safety practices. Wash hands before breaks, in use, and at the end of the workday.
Measures to prevent fire:	Not available
Measures to prevent aerosol and dust generation:	Not available
Measures to protect the environment:	Not available

Conditions for safe storage, including any incompatibilities.

Technical measures and storage conditions:	-20°C
Packaging materials:	Store in original container.
Requirements for storage rooms and vessels:	Not available
Specific end use(s):	Avoid concentration of liquid.

SECTION 8–Exposure Controls/Personal Protection

Ingredient	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Glycerol (CAS 56-81-5)	--	5	--	--

Engineering controls:	Safety shower and eye wash station.
Personal protection equipment:	
Eye/face protection:	Safety glasses with side shields or goggles approved by government standards such as NIOSH (US), CEN (EU) and WHMIS (CA).
Skin/body protection:	Lab coat.
Hand protection:	Latex or rubber gloves
Respiratory protection:	Use in a well-ventilated area. For bulk material (> 10 ml) use respirator and components tested and approved by government standards such as NIOSH (US), CEN (EU) and WHMIS (CA).
Thermal hazards:	Keep open vial at/between 4°C and room temperature.
General health & safety measures:	Use clean laboratory practices.
Environmental exposure controls:	Triple rinse product (polypropylene) containers with water before recycling.

SECTION 9–Physical And Chemical Properties

Information on basic physical and chemical properties

Physical State:	Liquid
Appearance / Color	Clear
Odor:	Slight
Odor Threshold:	None
pH:	8.3
Melting Point / Freezing Point:	Not available
Initial Boiling Point and Boiling Range:	~ 100°C @ 20 mmHg
Flash Point:	Not available
Evaporation Rate:	Not available
Flammability:	Combustible
Lower Flammability/Explosive Limit:	None
Upper Flammability/Explosive Limit:	None
Vapor Pressure:	Not available
Vapor Density:	Not available
Relative Density:	1 mg/ml
Solubility:	Water soluble
Partition coefficient: n-octanol/water:	Unknown
Auto-ignition Temperature:	Unknown
Decomposition Temperature:	100°C
Viscosity:	Unknown
Explosive Properties:	None
Oxidizing Properties:	None
Other information:	Not available

SECTION 10–Stability And Reactivity

Chemical stability:	Avoid concentration of liquid.
Possibility of hazardous reactions:	Explosive with strong oxidizers.
Conditions to avoid:	Avoid strong oxidizers. Avoid concentration of liquid mixture to solids.
Incompatible materials:	Nitric acid, perchloric acid.
Hazardous decomposition products:	Carbon oxides and nitrous oxides.

SECTION 11–Toxicological Information

Likely Routes of Exposure:	Inhalation; ingestion, eye and skin contact.
Acute Effects:	
Eye:	Redness and soreness.
Skin:	Redness, rash, burning, dry, and itching skin.
Inhalation:	Nasal irritation, headache, cough, shortness of breath.
Ingestion:	Malaise, dizziness, and nausea, gastrointestinal burns.
Toxicity:	Target organ: Kidney with repeated exposure.
Skin Corrosion / Irritation:	Mild
Serious Eye Damage / Irritation:	Mild
Respiratory or Skin Sensitization:	Mild
STOT-Single Exposure:	Not available
Chronic Health Effects:	Not available
Carcinogenicity:	Not available
Germ Cell Mutagenicity:	Not available
Reproductive Toxicity:	Not available
Developmental:	Not available
Fertility:	Not available
STOT-Repeated Exposure:	Not available
Aspiration Hazard:	Target organ kidney with repeated exposure.
Other Information:	None

SECTION 12–Ecological Information

Acute Toxicity:	Not available
Chronic Toxicity:	Not available
Eco/Aquatic Toxicity:	Not available

Ingredient	Results
DMSO	4300 ppm (fish)
	4% (blue green algae)

Terrestrial	Not available
Persistence and degradability	
Abiotic Degradation:	Not available
Physical- and photo-chemical elimination:	Not available
Biodegradation:	Not available
Bioaccumulative potential	Not available
Biological Oxygen Demand for DMSO	
Theoretical Oxygen Demand at 10 ppm:	123 mg oxygen
Chemical Oxygen Demand at 10 ppm:	107 mg/L
Biological Oxygen Demand-5 at 10 ppm:	<1.0 mg/L
Mobility in soil:	Not available
Known or predicted distribution to	Not available

environmental compartments:	
Surface tension:	Not available
Absorption/desorption:	Not available
Results of PBT and vPvB assessment	
PBT results:	Not available
vPvB results:	Not available
Other adverse effects:	Not available
Additional information:	None

SECTION 13–Disposal Considerations

Waste treatment methods.	
Product/packaging disposal:	Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by chemical incinerator.
Waste codes/waste designations according to LoW:	Unknown
Waste treatment-relevant information:	Use licensed professional waste disposal company.
Sewage disposal-relevant information:	Prevent material from entering drains, sewer and waterways.
Other disposal recommendations:	None

SECTION 14–Transport Information

This product is classified as not hazardous and is not regulated by US Department of Transportation (DOT), ADR/RID (cross border) IMDG and IATA / ICAO.

UN number:	Not Classified
UN proper shipping name:	Not Classified
Transport hazard class(es):	Not Classified
Packing group:	Not Classified
Environmental hazards:	Not available
Special precautions for user:	Do not transport until safety precautions have been read and understood.

Bulks (> 10 ml) require health target organ toxicity label.

SECTION 15–Regulatory Information

Components of this product do not appear in the lists generated under EU Dangerous Preparations Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP); and under Occupational Safety and Health Administration (OSHA) hazard communication standard, 29 CFR 1910.1200 and Canada's WHMIS standard.

For uses of this product subject to the Toxic Substances Control Act (TSCA): This product contains a chemical substance not on the TSCA Inventory. For research and development use only and under the direction of a technically qualified individual (See 40 CFR 720.36.)

SECTION 16–Other Information

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008 [CLP]:
Classified as not dangerous

Relevant R-, H- and EUH- Phrases:

Xi R36/37/38	Irritating to eyes, respiratory system and skin
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
EUH	To avoid risks to human health and the environment, comply with the instructions (specifications) for use.

Classification and labeling HMIS and NFPA Label Ratings

Both systems have a three color-coded fields [flammability (red), health (blue), and reactivity (yellow)] to indicate the type of hazard associated with this chemical.

Both use a system of five numbers, ranging from 0 to 4, to indicate the severity of hazard, with 0 being the least and 4 being the most hazardous.

Hazard Classification: (glycerol)

Health (blue),	-- 2
Flammability (red)	-- 0
Reactivity (yellow),	-- 1

Disclaimer: Components of this product do not appear in the lists generated under EU Dangerous Preparations Directive 1999/45/EC and Regulation (EC) No 1272/2008 (CLP); and under Occupational Safety and Health Administration (OSHA) hazard communication standard, 29 CFR 1910.1200 and Canada's WHMIS standard.

For uses of this product subject to the Toxic Substances Control Act (TSCA): This product contains a proprietary component of which its toxicological properties have not been fully investigated. For research and development use only and under the direction of a technically qualified individual (See 40 CFR 720.36.)

Questions about the information found on the SDS should be directed to info@neb.com.

Approved by:	EHS Manager (978) 927-5054 info@neb.com
Prepared for:	New England Biolabs

End of Safety Data Sheet