



Safety Data Sheet

1 Chemical product and company identification

Identification of the product	THUNDERBIRD® Probe One-step qRT-PCR Kit
Product Code	QRZ-101,101S
SUPPLIER	
Name	TOYOBO Co., Ltd.
Address	2-8 Dojima Hama 2-chome, Kita-ku OSAKA 530-8230 JAPAN
Department	Life Science Department
Emergency Telephone No.	+81-6-6348-3786
Fax No.	+81-6-6348-3833
Recommended use and restrictions on use	2 enzymes 1-step RT-PCR Reagent Kit (tentative)

2 HAZARDS IDENTIFICATION

Most Important Hazards	Few adverse human health effects are anticipated.		
GHS Classification			
Hazard class and category			
Physical Hazards	Not Applicable		
Health Hazards	2x Reaction Buffer DNA Polymerase RT Enzyme Mix		
Acute Toxicity	Not Applicable	Not Applicable	Not Applicable
Skin corrosion/Irritation	Category 3	Category 3	Category 3
Serious eye damage/Eye irritation	Classification not possible	Category 2B	Category 2B
Environmental Hazards	Not Applicable		
Label elements			
<2x Reaction Buffer>			
Pictograms or symbols	—		
Signal word	Warning		
Hazard statements	Causes mild skin irritation.		
Precautionary statement(s)			
Prevention	—		
Response	If skin irritation or rash occurs: Get medical advice / attention.		



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This is continued from 2 HAZARDS IDENTIFICATION

<DNA Polymerase>

Pictograms or symbols	—
Signal word	Warning
Hazard statements	Causes mild skin irritation.Causes eye irritation.
Precautionary statement(s)	
Prevention	Wash hands thoroughly after handling.
Response	If skin irritation occurs: Get medical advice / attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.If eye irritation persists: Get medical advice / attention.

<RT Enzyme Mix>

Pictograms or symbols	—
Signal word	Warning
Hazard statements	Causes mild skin irritation.Causes eye irritation.
Precautionary statement(s)	
Prevention	Wash hands thoroughly after handling.
Response	If skin irritation occurs: Get medical advice / attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.If eye irritation persists: Get medical advice / attention.



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3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Product (Substance/Mixture)	Mixture				
Chemical Nature	Aqueous solution of enzyme, substrate, etc.				
Parts Name	Main components		CAS No. (EC NO.)		
<2x Reaction Buffer>	Tris(Hydroxymethyl)aminomethan		77-86-1		
	Additive1		Nondisclosure		
	Potassium chloride		7447-40-7		
	Magnesium chloride		7786-30-3		
	Deoxyadenosine triphosphate		1927-31-7		
	Deoxycytidine triphosphate		102783-51-7		
	Deoxyguanosine triphosphate		93919-41-6		
	Deoxyuridine triphosphate		102814-08-4		
	Additive2		Nondisclosure		
<DNA Polymerase>	Tris(Hydroxymethyl)aminometha		77-86-1		
	Potassium chloride		7447-40-7		
	DNA polymerase		(EC 2.7.7.7)		
	Glycerol		56-81-5		
	Polyethylene Glycol Mono-p- isooctylphenyl Ether		9002-93-1		
<RT Enzyme Mix>	HEPES		7365-45-9		
	Reverse transcriptase		(EC		
	Ribonuclease Inhibitor		-		
	Poly(oxyethylene)		9016-45-9		
	Nonylphenylether		-		
	Glycerol		56-81-5		
<50×ROX Reference Dye>	ROX Reference Dye		-		
<RNase free water>	RNase free water		7732-18-5		
Components Contributing to the Hazard					
Common Chemical Name (or Generic Name)	Additive1	Glycerol	Poly(oxyethylene) Nonylphenylether	Additive2	Polyethylene Glycol Mono-p- isooctylphenyl Ether
Synonyms	Nondisclosure	Glycerin	Nonidet P-40	Nondisclosure	Triton X-100, Polyethylene Glycol-p-(1,1,3,3- tetramethylbutyl) phenyl Ether
Contained Parts:Percentage	2x Reaction Buffer<10%	DNAPolymerase: 50% RT Enzyme Mix:50%	RT Enzyme Mix: not over 0.01%	2x Reaction Buffer<3%	DNAPolymerase: 0.5%
Chemical formula	Nondisclosure	CH ₂ OHCHOHCH ₂ OH	HO(C ₂ H ₄ O) _n -C ₆ H ₄ -C ₉ H ₁₉	Nondisclosure	HO(C ₂ H ₄ O) _n -C ₆ H ₄ -C ₈ H ₁₇
CAS No.	Nondisclosure	56-81-5	9016-45-9	Nondisclosure	9002-93-1



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4 FIRST-AID MEASURES

Inhalation	In case of irritation by inhaling this product, move affected person to fresh air and await recovery. If irritation persists, seek immediate medical attention.
Skin Contact	Wash with clean water, immediately.
Eye Contact	Rinse cautiously with water for several minutes.
Ingestion	Induce vomiting. If indisposition continues, seek medical attention.

5 FIRE-FIGHTING MEASURES

Extinguishing Media	Water, Carbon Dioxide, Foam, Dry Chemical Powder
Protection of fire-fighters	Fire-fighting should be done from the windward side of fire area. Fire-fighters should wear proper protective equipment in case of large scale fire.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions	Wear protective gear to avoid eye/skin contact and inhalation.
Environmental Precautions	Avoid disposition to the environment.
Methods for Cleaning up	Use cloth, paper or anything similar to soak up the solution leaking out of the container. Take up under vacuum using dust collecting filter.

7 HANDLING AND STORAGE

HANDLING	
Technical Measures	Wear protective equipments and avoid contact with eyes and skin. Handle with ventilation and local exhaust system.
Precautions	After handling, wash with clean water.
Safe Handling Advice	Good laboratory technique should be used when handling this product.
STORAGE	
Storage Conditions	Store at about -20°C
Packaging Materials	Store in the original package

8 EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING MEASURES Set up good ventilation and exhaust system in the work area.

Control Parameter

Limit Values	Additive1	Glycerol	Poly(oxyethylene) Nonylphenylether	Additive2	Polyethylene Glycol Mono-p-isoocetylphenyl Ether
JSOH OEL	Not established	Not established	Not established	Not established	Not established
ACGIH TLV	Not established	10mg/m ³	Not established	Not established	Not established
OSHA PEL	Not established	total dust: 15mg/m ³ TWA respirable fr.: 5mg/m ³ TWA	Not established	Not established	Not established

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection	Wear a dust mask.
Hand Protection	Chemical safety gloves.
Eye Protection	Chemical safety goggles.
Skin and Body Protection	Long sleeves to prevent contact with skin.



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9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid. 2x Reaction Buffer freezes at -20°C. DNA Polymerase and RT enzyme Mix are liquid over -20°C.
Colour	None
Odour	None
pH	7.0-9.0
Flash Point	Not flammable due to aqueous solution, but 1,3-propanediol whose flash point 131°C may stay behind after volatilization 2x Reaction Buffer. Glycerol whose flash point 160°C may also stay behind after volatilization DNA polymerase and RT Enzyme Mix.
Boiling Point	Not available
Melting Point	Not available
Decomposition Temperature	Not available
Specific gravity	1.0-1.2
Solubility	Soluble in water

10 STABILITY AND REACTIVITY

Stability	Stable at -20°C
Possible Hazardous Reactions	None
Conditions to Avoid	Strong heat
Material to Avoid	Direct sunlight, strong oxidizers and strong reducers
Hazardous Decomposition Product	Not available

11 TOXICOLOGICAL INFORMATION

<2x Reaction Buffer>

Acute Toxicity	Not available
Local Effects	Causes mild skin irritation.
Toxicological information on the component of this product	Additive1

Acute toxicity (LD50) Oral-mouse:
4773mg/kg

*Reference data of Tetramethylammonium Acetate

<DNA Polymerase>

Acute Toxicity	Not available
Local Effects	Causes mild skin irritation.Causes eye irritation.
Toxicological information on the component of this product	

Glycerol Polyethylene
Glycol Mono-p-
isooctylphenyl
Ether

Acute toxicity (LD50) Oral-mouse: Oral-rat:
4090mg/kg 1800mg/kg
Oral-rat:
12.6g/kg



Safety Data Sheet

This is continued from 11 TOXICOLOGICAL INFORMATION

<RT Enzyme Mix>

Acute Toxicity

Not available

Local Effects

Causes mild skin irritation.Causes eye irritation.

Toxicological information on the component of this product

Glycerol	Poly(oxyethylene) Nonylphenylether
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Acute toxicity (LD50)

Oral-mouse:	Oral-mouse:
4090mg/kg	3500mg/kg

Oral-rat:	Oral-rat:
12.6g/kg	4190mg/kg

12 ECOLOGICAL INFORMATION

Mobility

Soluble in water and diffusible into water environment.

Persistence/Degradability

Poly(oxyethylene)Nonylphenylether and Polyethylene Glycol Mono-p-isooctylphenyl Ether aren't biodegradable. Enzyme, protein, nucleotide and glycerol are biodegradable.

Bioaccumulation

Not available

13 DISPOSAL CONSIDERATIONS

Waste from Residues

Dispose of in accordance with all applicable local and national laws and regulations.

Contaminated Packaging

Dispose of in accordance with all applicable local and national laws and regulations.

14 TRANSPORT INFORMATION

International Regulations

UN Classification Number

Not classified

Specific Precautions

Follow all of the laws and regulations in your respective country.

To prevent packages from breaking, handle with care.Store at about -20° C when it is transported.

15 REGULATORY INFORMATION

Regulations, Evaluation, Authorization and Restriction of Chemicals(EU)

The following ingredients are included in SVHC(Candidate list of authorization)

Common Chemical name

Polyethylene Glycol Mono-p-isooctylphenyl Ether(Triton X-100)

Concentration or concentration range

ca. 0.5% (W/W)

Chemical fomula

HO(C₂H₄O)_n-C₆H₄-C₈H₁₇

CAS#

9002-93-1

Regulations

Follow all of the laws and regulations in your country.

16 OTHER INFORMATION



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Notice

This product is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. The information in this SDS, to the best of our knowledge, is accurate and correct. However, TOYOBO makes no warranty and assumes no liability whatsoever in connection with any use of this information. The information shall not be taken as being all inclusive and is to be used only a guide. All materials and mixtures may be present unknown hazards and should be used with caution. The SDS is subject to revision as new information becomes available.