

## Safety Data Sheet

### 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Identification of the product	QuantAccuracy™, RT-RamDA™ cDNA Synthesis Kit
Product Code	RMQ-101
SUPPLIER	
Name	TOYOBO Co., Ltd.
Address	2-8 Dojima Hama 2-chome, Kita-Ku OSAKA 530-8230 JAPAN
Department	Biotechnology Overseas Sales and Marketing
Emergency Telephone No.	+81-6-6348-3843
Fax No.	+81-6-6348-3833
Recommended use and restrictions on use	cDNA amplification kit for qPCR (Reagents for research)

### 2 HAZARDS IDENTIFICATION

Most Important Hazards	gDNA Remover, RNase Inhibitor RT-RamDA™ Enzyme Mix, and Lysis Enhancer contain glycerol and may cause eye and skin irritation. Lysis Buffer contains detergent and may cause eye irritation.
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Specific Hazard	Not available
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#### GHS Classification

Hazard class and category				
		gDNA Remover	RNase Inhibitor	Lysis Buffer, RT-RamDA™ Buffer, RT-RamDA™ Primer, Nuclease-free water
Physical Hazards	Flammable liquids	Not classified	Not classified	Not classified
Health Hazards	Skin corrosion /Irritation	Category 3	Category 3	Not classified
	Serious eye damage /Eye irritation	Category 2B	Category 2B	Not classified
Environmental Hazards		Classification not possible	Classification not possible	Classification not possible
		RT-RamDA™ Enzyme Mix	Lysis Enhancer	
Physical Hazards	Flammable liquids	Not classified	Not classified	
Health Hazards	Skin corrosion /Irritation	Category 3	Category 2	
	Serious eye damage /Eye irritation	Category 2B	Category 2	
Environmental Hazards		Classification not possible	Not classified	
Label elements	RNase Inhibitor gDNA Remover RT-RamDA™ Enzyme Mix			
Pictogram or symbol	No symbol			
Signal word	Warning			
Hazard statement	Causes skin irritation Causes serious eye irritation			
Precautionary statement				
Prevention	Wash hands thoroughly after handling.			

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2 HAZARDS IDENTIFICATION (CONTINUED)

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.
Label elements	Lysis Enhancer
Pictograms or symbols	
Signal words	Warning
Hazard statements	Causes skin irritation Causes serious eye irritation
Prevention	Wash hands thoroughly after handling Wear protective gloves. Wear eye protection/face protection.
Response	IF ON SKIN: Wash with plenty of water IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention.

3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Product (Substance/Mixture)	Mixture	
Chemical Nature	Aqueous solution	
Parts Name	Main Component	CAS No.
①Lysis Buffer	Protease	-
	Surfactant A	-
②Lysis Enhancer	Guanidine Thiocyanate	593-84-0
③RNase Inhibitor	Glycerol	56-81-5
	Dithiothreitol	3483-12-3
	4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid	7365-45-9
	RNase Inhibitor	-
④RT-RamDA™ Buffer	Tris(hydroxymethyl)aminomethane	77-86-1
	Magnesium chloride	7786-30-3
	2'-deoxyadenosine 5'-(tetrahydrogen triphosphate)	1927-31-7
	2'-deoxycytidine 5'-(tetrahydrogen triphosphate)	102783-51-7
	2'-deoxyguanosine 5'-(tetrahydrogen triphosphate)	93919-41-6
	2'-deoxythymidine 5'-(tetrahydrogen triphosphate)	18423-43-3
⑤gDNA Remover	Glycerol	56-81-5
	Tris(hydroxymethyl)aminomethane	77-86-1
	Deoxyribonuclease	9003-98-9
⑥RT-RamDA™ Enzyme	Tris(hydroxymethyl)aminomethane	77-86-1
	Poly(oxyethylene)nonylphenyl ether	9016-45-9
	Glycerol	56-81-5
	Reverse Transcriptase	-
	RNase Inhibitor	-
	4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid	7365-45-9
⑦RT-RamDA™ Primer	Tris(hydroxymethyl)aminomethane	77-86-1
	Ethylenediaminetetraacetic acid disodium salt	139-33-3
	Deoxyribonucleic acid	-
⑧Nuclease free water	Water	7732-18-5

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### 3 COMPOSITION / INFORMATION ON INGREDIENTS(CONTINUED)

Components Contributing to the Hazard

Common Chemical Name (or Generic Name)	Surfactant A	Glycerol	Guanidine Thiocyanate
Synonyms	-	Glycerin	guanidinium isothiocyanate
Chemical formula	-	CH <sub>2</sub> (OH)CH(OH) )CH <sub>2</sub> (OH)	C <sub>2</sub> H <sub>6</sub> N <sub>4</sub> S
CAS No.	-	56-81-5	593-84-0
Concentration	< 1%	approximately 50%	< 3%
Common Chemical Name (or Generic Name)	4-(2-hydroxyethyl)- 1-piperazineethane sulfonic acid	Poly(oxyethylene )nonylphenyl ether	
Synonyms	HEPES	Nonidet P-40	
Chemical formula	C <sub>8</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> S	Not specified	
CAS No.	7365-45-9	9016-45-9	
Concentration	< 0.5%	< 0.00005%	

### 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 plenty of clean water, immediately. If skin irritation occurs: Get medical advice/attention.
Eye Contact	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.
Ingestion	Try to get the affected person to vomit as much as possible. Seek medical attention, immediately.

### 5 FIRE-FIGHTING MEASURES

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

### 6 ACCIDENTAL RELEASE MEASURES

Personal Precautions	Wear protective equipments and 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 to 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	Avoid substance contact.
Hygiene measures	Keep the handling area always clean. After handling, wash hands
STORAGE	
Proper Storage Conditions	Keep tightly closed and store at below -20°C
Packaging Materials	Store in the original package

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8 EXPOSURE CONTROLS/ PERSONAL PROTECTION

Control Parameter		Surfactant A	Glycerol (mist)	Guanidine Thiocyanate
Limit Values				
JSOH	OEL	not established	not established	not established
ACGIH	TLV	not established	10mg/m <sup>3</sup>	not established
OSHA	PEL	not established	total dust: 15mg/m <sup>3</sup> TWA respirable fr.: 5mg/m <sup>3</sup> TWA	not established
Limit Values		4-(2-hydroxyethyl)-1-piperazineethane sulfonic acid	Poly(oxyethylene )nonylphenyl ether	
JSOH	OEL	not established	not established	
ACGIH	TLV	not established	not established	
OSHA	PEL	not established	not established	

PERSONAL PROTECTIVE EQUIPMENT

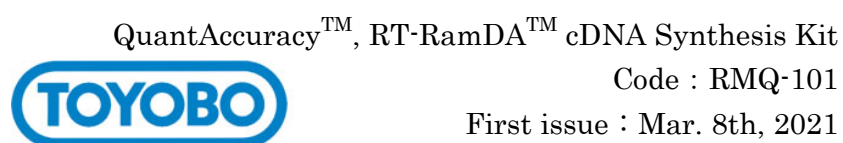
Respiratory Protection	Wear a dust mask when needed.
Hand Protection	Wear chemical safety gloves.
Eye Protection	Wear protective eyeglasses or chemical safety goggles.
Skin and Body Protection	Wear lab coat when needed.

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid at normal temperature. Lysis Buffer, RT-RamDA™ Primer Mix, and Nuclease-free Water freeze at -20℃.
Colour	Colourless
Odour	Odourless
pH	6.0-9.0
Flash Point	Not flammable due to aqueous solution, but glycerol whose flash point 160℃ may stay behind after volatilization.
Explosion limit	Not explosive
Density	1.0~1.2(g/cm <sup>3</sup> )
Solubility	Soluble in water

10 STABILITY AND REACTIVITY

Stability	Stable at below -20℃.
Possible Hazardous Reactions	Nothing particular
Conditions to Avoid	High temperature, ignition sources, direct sunlight
Material to Avoid	Strong oxidizer, strong reducers
Hazardous Decomposition Product	Not available



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### 11 TOXICOLOGICAL INFORMATION

Toxicological information on the component of this product			
Acute Toxicity	Not Available		
Local Effects	May cause eye and skin irritation.		
Toxicological information on the component of this product			
	Surfactant A	Glycerol	Guanidine Thiocyanate
Skin corrosion/Irritation	-	Rabbit, 500mg/24hr: Mild	Causes burns
Serious eye damage/Eye irritation	Rabbit, undilluted, OECD405: Category 1	Rabbit, 500mg/24hr: Mild	Risk of blindness. Causes severe burns.

### 12 ECOLOGICAL INFORMATION

Ecotoxicity	Surfactant A	Glycerol	Guanidine Thiocyanate
	Rainboutrout: LC50(96hr) >0.5 mg/L	Rainboutrout: LC50(96hr) 54g/L Gold fish: LC50(24hr) > 5g/L Daphnia magna : EC50(24hr) > 10g/L	Guppy: C50(96hr) 89.1g/L Daphnia magna50(48hr) > 42.4g/L Green algae: EC50(72hr) 130g/L
Persistence and degradability	Glycerol and enzyme or the like is Biodegradable. Surfactant A is not readily biodegradable.		
Bioaccumulative potential	Thought to be not bioaccumulative.		
Mobility in soil	Soluble in water and diffusible into water environment.		

### 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
	Follow all of the laws and regulations in your respective country.
Specific Precautions	To prevent packages from breaking, handle with care.

### 15 REGULATORY INFORMATION

Follow all of the laws and regulations in your country.

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### 16 OTHER INFORMATION

#### Notice

This product is sold for research purposes only. 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.