

SAFETY DATA SHEET

QuickGene-AutoS RNA Cultured Cell Kit (AS-RC)

Name of substance	Classification acc. to GHS	Pictograms
Lysis Buffer LRC-02	Flam. Liq. 3: H226 Acute Tox. 4: H302 Skin Irrit. 2: H315 Eye Irrit. 2A: H319 Carc. 1A: H350 Repr. 1A: H360 STOT SE 2: H371 STOT RE 2: H373 Aquatic Acute 2: H401 Aquatic Chronic 2: H411	
Wash Buffer WRC-S1	Flam. Liq. 3: H226 Eye Irrit. 2A: H319 Carc. 1A: H350 Repr. 1A: H360 STOT SE 3: H335, H336 STOT RE 1: H372 STOT RE 2: H373	
Elution Buffer CRC-S1		
Ethanol	Flam. Liq. 2: H225 Eye Irrit. 2B: H320 Carc. 1A: H350 Repr. 1A: H360 STOT SE 3: H335, H336 STOT RE 1: H372 STOT RE 2: H373	

KURABO INDUSTRIES LTD.

Bio-Medical Department

Address	Neyagawa Techno Center 3F 14-5 Shimokida-Cho, Neyagawa, Osaka 572-0823, Japan
Telephone Number	+81-72-820-3079
FAX Number	+81-72-820-3095

Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Lysis Buffer
Product code: LRC-02
SDS NO: LRC02_JPE_1

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KURABO INDUSTRIES LTD.
Address: Neyagawa Techno Center, 14-5 Shimokida-cho, Neyagawa, Osaka, 572-0823 JAPAN
Division: Bio-Medical department
Telephone number: +81-72-820-3079
FAX: +81-72-820-3095

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the product: Reagents for automated nucleic acid isolation system
Uses advised against: For research use only

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL HAZARDS	Flammable liquids: Category 3
HEALTH HAZARDS	Acute toxicity Oral: Category 4
	Skin corrosion/irritation: Category 2
	Serious eye damage/eye irritation: Category 2A
	Carcinogenicity: Category 1A
	Reproductive toxicity: Category 1A
	Specific target organ systemictoxicity – single exposure: Category 2(blood system, heart)
	Specific target organ systemictoxicity – Repeated exposure Category 2(liver)
	Hazardous to aquatic environment, acute hazard: Category 2
	Hazardous to aquatic environment, long-term hazard: Category 2

(Note) GHS classification without description: Not applicable/Out of classification/Not classifiable

Label elements



Signal word: Danger

HAZARD STATEMENT

H226 Flammable liquid and vapour
H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H350 May cause cancer
H360 May damage fertility or the unborn child
H371 May cause damage to organs
H373 May cause damage to organs through prolonged or repeated exposure
H401 Toxic to aquatic life
H411 Toxic to aquatic life with long-lasting effects

PRECAUTIONARY STATEMENT

Prevention

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, open flames.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.

5. Fire-fighting measures

Extinguishing media	
Suitable extinguishing media	Dry chemical, foam, carbon dioxide, water fog.
Extinguishing media to avoid	None.
Special fire fighting	Keep personnel removed from and upwind of fire. Water runoff can damage the environment.
Procedures	Dike and collect water used to fight fire Evacuate area and fight fire from a safe distance.
Protection of fire-fighters	Wear adequate personal protective equipment.nt.

6. Accidental release measures

- Personnel precautions, protective equipment and emergency measures**
Wear adequate personal protective equipment, see Section 8 (Exposure Controls/Personal Protection)
- Environmental precautions**
Prevent from entering into soil, waterways and ground water.
- Clean-up methods and materials and containment measures**
Spills should be contained by, and covered with suitable absorbent material and removed for disposal.

7. Handling and storage

Precautions for safe handling		
Handling	Technicalmeasures	Avoid contact with skin, eyes and clothing. Wash hands after handling.
	Local and general ventilation	Use only with adequate ventilation.
	Precautions	See Section 8 (Exposure Controls/Personal Protection).
	Safehandling advice	See Section 10 (Stability and reactivity).
Storage	Suitable storage conditions	Protect from sunlight. Keep container tightly closed.
	Safe packaging materials	Use plastic container that have enough toughness.

8. Exposure controls/personal protection

- Engineering measures**
Evacuate and ventilate spill area. Provide easy access to water supply and eye wash facilities.
- Personal protective equipment**
- | | |
|--------------------------|---|
| Respiratory protection | Wear suitable respiratory protection. |
| Hand protection | Use only with adequate ventilation. |
| Eye protection | Use eye protection. Use face shield in case of splash risk. |
| Skin and body protection | Wear suitable protective clothing. |
- Hygiene measures**
When using, do not eat, drink or smoke. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Information on basic physical and chemical properties	
Physical properties	
Appearance:	Liquid
Color:	Pale yellow
Odor:	Practically odourless
pH:	5.5 Approx.
Flash point:	127.4 ° F (52.7 ° C) Closed cup method
Auto-ignition temperature	Not determined
Solubility	
	Completely soluble

10. Stability and Reactivity

Chemical stability	Stable under normal storage/handling conditions.
Conditions to avoid	Freezing. Protect against direct sunlight.
Incompatible materials	None.
Hazardous decomposition products	CO, CO2 Nitrogen oxides (NOx).

11. Toxicological Information

Acute toxicity	
TestResults	Acute Oral LD50 Rat: > 500 mg/kg
Skin corrosion/irritation	moderate
Serious eyedamage/eye irritation	moderately irritant
Carcinogenicity	Substances in group [1;2A;2B] by IARC (International Agency for Research on Cancer):None

12. Ecological Information

Bioaccumulation	Not established.
Mobilityinsoil	Not established.
Otherhazardous effects	Not established

13. Disposal considerations

When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste. Follow the laws and regulations in your country while disposing of this product or waste.

14. Transport Information

Marine transportation	Marine transportation is regulated by IMDG Code.
Air transportation	Air transportation is regulated by IATA Dangerous Goods Regulations.
UN No	3082
Class	9
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s
Packing group	III
Marine pollutant	Applicable
MARPOL 73/78 Annex II and liquid substances to be bulk loaded by IBC code	Not applicable

15. Regulatory Information**Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances**

Priority evaluation chemical substance	hexadecyltrimethylammonium bromide No.166
Former Type 3 Monitoring Chemical Substance:	hexadecyltrimethylammonium bromide No.51

Industrial Safety and Health Law

Dangerous Substances Flammable:	N/A.
Dangerous Substances Flammable Gases:	Not regulated.
Dangerous Substances Oxidizing:	Not regulated.
Dangerous Substances Explosives:	Not regulated.
Dangerous Substances Ignitable:	Not regulated.
Harmful Substances Carcinogen:	Not regulated.
Class 1 Designated Chemical Substances:	Not regulated.
Class 2 Designated Chemical Substances:	Not regulated.
Class 3 Designated Chemical Substances:	Not regulated.
Class 1 Organic Solvents Preparations:	Not regulated.
Class 2 Organic Solvents Preparations:	Not regulated.
Class 3 Organic Solvents Preparations:	Not regulated.
Notifiable Substance:	ethanol[No.61]
Labeling Requirements:	Not regulated.
Others:	Not regulated.

Poisonous and Deleterious Substances Control Law

Specified Poisonous Substance – Main Law:	Not regulated.
Specified Poisonous Substance – Cabinet Order:	Not regulated.
Poisonous Substances – Main Law:	Not regulated.
Poisonous Substances – Cabinet Order:	Not regulated.
Deleterious Substances – Main Law:	Not regulated.
Deleterious Substances – Cabinet Order:	Not regulated.
Enforcement Order Article 32-2:	Not regulated.
Enforcement Order Article 32-3:	Not regulated.
Not Considered Poisonous:	Not regulated.

Not Considered Deleterious:	Not regulated.
Cabinet Order, Preparations:	Not regulated.
Fire Service Law	
Class 1 Oxidizing Solids:	Not regulated.
Class 2 Flammable Solids:	Not regulated.
Class 3 Spontaneous combustibility and Water-reactivity Substances:	Not regulated.
Class 4 Flammable Liquids:	N/A.
Class 5 Self-Reactive Substances:	Not regulated.
Class 6 Oxidizing Liquids:	Not regulated.
Designated Flammable Substances:	Not regulated.
Storage Reporting Substance:	Not regulated.
Japan PRTR	
Specific Class 1 Designated Substance:	Not regulated.
Class 1 Designated Substance:	Not regulated.
Class 2 Designated Substance:	hexadecyltrimethylammonium bromide [PRTR2:85]
Ship Safety Law	Not regulated.
Civil Aeronautics law	Not regulated.
Dangerous goods marine transportation and storage rules	Not regulated.
High Pressure Gas Safety law	Not regulated.
Gun Powder Control Law	Not regulated.

16. Other information

GHS classification and labelling

Flam. Liq. 3: H226
 Acute Tox. 4: H302
 Skin Irrit. 2: H315
 Eye Irrit. 2A: H319
 Carc. 1A: H350
 Repr. 1A: H360
 STOT SE 2: H371
 STOT RE 2: H373
 Aquatic Acute 2: H401
 Aquatic Chronic 2: H411

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN
 Recommendations on the TRANSPORT OF DANGEROUS GOODS 19th edit., 2015 UN
 Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)
 JIS Z 7252:2014, JIS Z 7253:2012
 NITE CHRIP (<http://www.safe.nite.go.jp/japan/sougou/view/SystemTop.jp.faces>)

General Disclaimer

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It are advised to make their own tests to determinate the safety and suitability of each such product or combination for their own purposes.

Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Wash Buffer
Product code: WRC-S1
SDS NO: WRCS1_JPE1

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KURABO INDUSTRIES LTD.
Address: Neyagawa Techno Center, 14-5 Shimokida-cho, Neyagawa, Osaka, 572-0823 JAPAN
Division: Bio-Medical department
Telephone number: +81-72-820-3079
FAX: +81-72-820-3095

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the product: Reagents for automated nucleic acid isolation system
 Uses advised against: For research use only

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL HAZARDS	Flammable liquids: Category 3
HEALTH HAZARDS	Serious eye damage / eyeirritation: Category 2A Carcinogenicity: Category 1A Reproductive toxicity: Category 1A Specific target organ systemictoxicity – single exposure: Category 3(respiratory tract irritation) Category 3(Narcotic effect) Specific target organ systemictoxicity – Repeated exposure Category 1(liver) Category 2(Central nervous system)

Label elements


Signal word: Danger

HAZARD STATEMENT

H226 Flammable liquid and vapour
 H319 Causes serious eye irritation
 H335 May cause respiratory irritation
 H336 May cause drowsiness or dizziness
 H350 May cause cancer
 H360 May damage fertility or the unborn child
 H372 Causes damage to organs through prolonged or repeated exposure
 H373 May cause damage to organs through prolonged or repeated exposure

PRECAUTIONARY STATEMENT
Prevention

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ventilating/lighting/equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P260 Do not breathe dust/fumes/gas/mist/vapours/spray.
 P261 Avoid breathing dust/fumes/gas/mist/vapours/spray.
 P264 Wash contaminated parts thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P313 If exposed: Call a POISON CENTER or doctor/physician.
 P312 Call a POISON CENTER or doctor if you feel unwell.
 P314 Get medical advice/attention if you feel unwell.
 P337 + P313 If eye irritation persists: Get medical advice/attention.
 P370 + P378 In case of fire: Use appropriate media to extinguish.

Storage

P405 Store locked up.
 P403 + P233 Store in a well ventilated place. Keep container tightly closed.
 P235 Keep cool.

Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

3. Composition/information on ingredients

Mixture/Substance selection Mixture

Ingredient name	Content(%)	CAS No.
ethanol	25 – 35	64-17-5
Water	Balance	7732-18-5

Note : The figures shown above are not the specifications of the product.
 Generally chemical substances greater than 1% of the total are listed.

4. First-aid measures

Descriptions of first-aid measures
IF INHALED Rescuers should wear proper personal protective equipment suitable for situation.
 Remove person to fresh air and keep comfortable for breathing.
 Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair) Remove contaminated clothing. Wash with plenty of soap and water.
 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.
IF SWALLOWED Rinse mouth.
 Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures

Extinguishing media
Suitable extinguishing media Carbon dioxide, dry chemical and alcohol-resistant foam, water spray.
Extinguishing media to avoid None.
Specific hazards arising from the chemical product Flammable.
Protection of fire-fighters Wear adequate personal protective equipment. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. Accidental release measures

Personnel precautions, protective equipment and emergency measures
 For indoor, provide adequate ventilation process until the end of working.
 Wear adequate personal protective equipment, see Section 8 (Exposure Controls/Personal Protection)
Environmental precautions
 To be careful not discharged to the environment without being properly handled waste water contaminated.
 See Section 12 for additional ecological information.
Clean-up methods and materials and containment measures
 Spills should be contained by, and covered with suitable absorbent material and removed for disposal.

7. Handling and storage**Precautions for safe handling**

Handling	Technical measures	Avoid contact with skin, eyes and clothing. Wash hands after handling.
	Local and general ventilation	Use only with adequate ventilation.
	Precautions	See Section 8 (Exposure Controls/Personal Protection).
Storage	Safe handling advice	See Section 10 (Stability and reactivity).
	Suitable storage conditions	Protect from sunlight. Keep container tightly closed.
	Safe packaging materials	Use plastic container that have enough toughness.

8. Exposure controls/personal protection**Engineering measures**

Evacuate and ventilate spill area. Provide easy access to water supply and eye wash facilities.

Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Ethanol 64-17-5	N/A	N/A	STEL: 1000 ppm

Personal protective equipment

Respiratory protection	Wear suitable respiratory protection.
Hand protection	Wear suitable gloves.
Eye protection	Use eye protection. Use face shield in case of splash risk.
Skin and body protection	Wear suitable protective clothing.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties**Information on basic physical and chemical properties**

Physical properties	
Appearance:	Liquid
Color:	Colourless, Clear
Odor:	Alcohol odor
pH:	7.6
Flash point:	no data
Auto-ignition temperature	no data
Solubility	
Solubility in water:	Completely soluble

10. Stability and Reactivity

Chemical stability	Stable under normal storage/handling conditions.
Conditions to avoid	Freezing. Extremes of temperature and direct sunlight, Heat, flames and sparks.
Hazardous decomposition products	CO, CO2 Nitrogen oxides (NOx).

11. Toxicological Information**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ethanol	6200mg/kg(Rat)	N/A	20000ppm/10H(Rat)

Chemical Name	Acute toxicity –oral– source information	Acute toxicity –dermal– source information	Acute toxicity –inhalation gassource information
Ethanol	LD50(Rat) : 6,200 mg/kg, 11,500 mg/kg, 17,800 mg/kg, 13,700 mg/kg(PATY(6th, 2012)), 15,010 mg/kg, 7,000–11,000	LDLo(Rabbit) = 20,000 mg/kg(SIDS(2005))	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity –inhalation vapor– source information	Acute toxicity –inhalation dustsource information	Acute toxicity –inhalation mistsource information
Ethanol	LC50(Rat) = 63,000 ppmV (DFGOT vol.12 (1999)), 66,280 ppmV(124.7 mg/L) (SIDS	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin corrosion/irritation

Chemical Name	Skin corrosion irritation source information
Ethanol	Based on the NITE GHS classification results.

Serious eyedamage/eye irritation

Chemical Name	Serious eye damage source information
Ethanol	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory, Skin sensitization source information
Ethanol	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	Mutagenic source information
Ethanol	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Ethanol	A3 (ACGIH (7th, 2012))

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Ethanol 64-17-5	Known	Group 1	A3	-

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Ethanol	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Ethanol	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Ethanol	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Ethanol	Based on the NITE GHS classification results.

12. Ecological Information**Bioaccumulation**

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ethanol	EC50: Chlorella alga 1000 mg/L 96 h	LC50: Fathead minnow >100mg/L 96h LC50: Oncorhynchus mykiss =11200ppm 96h	EC50: Daphnia magna 5463 mg/L 48 h

Persistence and degradability Degree of decomposition: 89 % by BOD

Bioaccumulative potential No information available

Mobility in soil No information available

Hazard to the ozone layer Mobility No information available

13. Disposal considerations

When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste. Follow the laws and regulations in your country while disposing of this product or waste.

14. Transport Information**International regulation**

Marine transportation	Marine transportation is regulated by IMDG Code.
Air transportation	Air transportation is regulated by IATA Dangerous Goods Regulations.
UN code	1170
Class	3
Proper Shipping Name	Ethanol solution
Packing group	III
Marine pollutant	Not applicable
MARPOL 73/78 Annex II and liquid substances to be bulk loaded by IBC code	Not applicable

15. Regulatory Information

International Inventories

EINECS/ELINCS	Listed
TSCA	Listed

Japanese regulations

Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances

Regulated. (2)-202

Industrial Safety and Health Act

Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.61
Dangerous Substances – Flammable Substance (Enforcement Order Attached Table 1 Item4)
Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1,
Enforcement Order Art.18)

Poisonous and Deleterious Substances Control Law

Not regulated.

Fire Service Law

Class 4 Flammable Liquids: Regulated. alcohols (water soluble)

Regulations for the carriage and storage of dangerous goods in ship

Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding
Transport by Ship and Storage, Attached Table 1)

Japan PRTR

Not regulated.

Civil Aeronautics law

Flammable Liquids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)

Japan Marine Pollution Prevention Law

Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Z

16. Other information

GHS classification and labelling

Flam. Liq. 3: H226
Eye Irrit. 2A: H319
Carc. 1A: H350
Repr. 1A: H360
STOT SE 3: H335, H336
STOT RE 1: H372
STOT RE 2: H373

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 19th edit., 2015 UN
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)
JIS Z 7252:2014, JIS Z 7253:2012
NITE CHRIP (<http://www.safe.nite.go.jp/japan/sougou/view/SystemTop.jp.faces>)

General Disclaimer

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It are advised to make their own tests to determinate the safety and suitability of each such product or combination for their own purposes.

Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Elution Buffer
Product code: CRC-S1
SDS NO: CRCS1_JPE_1

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KURABO INDUSTRIES LTD.
Address: Neyagawa Techno Center, 14-5 Shimokida-cho, Neyagawa, Osaka, 572-0823 JAPAN
Division: Bio-Medical department
Telephone number: +81-72-820-3079
FAX: +81-72-820-3095

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the product: Reagents for automated nucleic acid isolation system
 Uses advised against: For research use only

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture
 Not applicable to GHS classification

Label elements

No hazard pictogram
 No Signal word

3. Composition/information on ingredients

Mixture/Substance selection Mixture

Ingredient name	Content(%)	CAS No.
Water	80-100	7732-18-5

Note : The figures shown above are not the specifications of the product.
 Generally chemical substances greater than 1% of the total are listed.

4. First-aid measures

Descriptions of first-aid measures Rescuers should wear proper personal protective equipment suitable for situation.

IF INHALED Remove person to fresh air and keep comfortable for breathing.
 Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN(or hair) Remove contaminated clothing. Wash with plenty of soap and water.
 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.

IF SWALLOWED Rinse mouth.
 Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media Carbon dioxide, dry chemical and protein based foam.

Extinguishing media to avoid None.

Special fire fighting Keep personnel removed from and upwind of fire. Water runoff can damage the environment.

Procedures Dike and collect water used to fight fire Evacuate area and fight fire from a safe distance.

Protection of fire-fighters Wear adequate personal protective equipment.

6. Accidental release measures

Personnel precautions, protective equipment and emergency measures

Wear adequate personal protective equipment, see Section 8 (Exposure Controls/Personal Protection)

Environmental precautions

Prevent from entering into soil, waterways and ground water.

Clean-up methods and materials and containment measures

Spills should be contained by, and covered with suitable absorbent material and removed for disposal.

7. Handling and storage

Precautions for safe handling

Handling	Technical measures	Avoid contact with skin, eyes and clothing. Wash hands after handling.
	Local and general ventilation	Use only with adequate ventilation.
Storage	Precautions	See Section 8 (Exposure Controls/Personal Protection).
	Safe handling advice	See Section 10 (Stability and reactivity).
	Suitable storage conditions	Protect from sunlight. Keep container tightly closed.
	Safe packaging materials	Use plastic container that have enough toughness.

8. Exposure controls/personal protection

Engineering measures

Evacuate and ventilate spill area. Provide easy access to water supply and eye wash facilities.

Personal protective equipment

Respiratory protection	Wear suitable respiratory protection.
Hand protection	Wear suitable gloves.
Eye protection	Use eye protection. Use face shield in case of splash risk.
Skin and body protection	Wear suitable protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical properties	
Appearance:	Liquid
Color:	Colourless, Clear
Odor:	Odourless
pH:	6.5
Flash point:	Not flammable
Auto-ignition temperature	Non combustible
Solubility	
Solubility in water:	Completely soluble
Viscosity	Like water

10. Stability and Reactivity

Chemical stability	Stable under normal storage/handling conditions.
Conditions to avoid	Freezing. Protect against direct sunlight.
Hazardous decomposition products	CO, CO2 Nitrogen oxides (NOx).

11. Toxicological Information

Acute toxicity

Test Results Acute Oral LD50 Rat: > 2000 mg/kg

Skin corrosion/irritation

No irritation

Serious eye damage/eye irritation

non irritant

Carcinogenicity

Substances in group [1;2A;2B] by IARC (International Agency for Research on Cancer):None

12. Ecological Information

Bioaccumulation	Not established.
Mobility in soil	Not established.
Other hazardous effects	Not established

13. Disposal considerations

When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste. Follow the laws and regulations in your country while disposing of this product or waste.

14. Transport Information

UN No, UN GLASS	Not applicable to UN NO.
Marine transportation is regulated by IMDG Code. Air transportation is regulated by IATA Dangerous Goods Regulations.	
IMDG	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.

15. Regulatory Information

Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances

Class 1 Specified Chemical Substance:	Not regulated.
Class 2 Specified Chemical Substance:	Not regulated.
Type 1 Monitoring Chemical Substance:	Not regulated.
Type 2 Monitoring Chemical Substance:	Not regulated.
Type 3 Monitoring Chemical Substance:	Not regulated.

Industrial Safety and Health Law

Dangerous Substances Flammable:	Not regulated.
Dangerous Substances Flammable Gases:	Not regulated.
Dangerous Substances Oxidizing:	Not regulated.
Dangerous Substances Explosives:	Not regulated.
Dangerous Substances Ignitable:	Not regulated.
Harmful Substances Carcinogen:	Not regulated.
Class 1 Designated Chemical Substances:	Not regulated.
Class 2 Designated Chemical Substances:	Not regulated.
Class 3 Designated Chemical Substances:	Not regulated.
Class 1 Organic Solvents Preparations:	Not regulated.
Class 2 Organic Solvents Preparations:	Not regulated.
Class 3 Organic Solvents Preparations:	Not regulated.
Notifiable Substance:	Not regulated.
Labeling Requirements:	Not regulated.
Others:	Not regulated.

Poisonous and Deleterious Substances Control Law

Specified Poisonous Substance – Main Law:	Not regulated.
Specified Poisonous Substance – Cabinet Order:	Not regulated.
Poisonous Substances – Main Law:	Not regulated.
Poisonous Substances – Cabinet Order:	Not regulated.
Deleterious Substances – Main Law:	Not regulated.
Deleterious Substances – Cabinet Order:	Not regulated.
Enforcement Order Article 32-2:	Not regulated.
Enforcement Order Article 32-3:	Not regulated.
Not Considered Poisonous:	Not regulated.
Not Considered Deleterious:	Not regulated.
Cabinet Order, Preparations:	Not regulated.

Fire Service Law

Class 1 Oxidizing Solids:	Not regulated.
Class 2 Flammable Solids:	Not regulated.
Class 3 Spontaneous combustibility and Water-reactivity Substances:	Not regulated.
Class 4 Flammable Liquids:	Not regulated.
Class 5 Self-Reactive Substances:	Not regulated.
Class 6 Oxidizing Liquids:	Not regulated.
Designated Flammable Substances:	Not regulated.
Storage Reporting Substance:	Not regulated.

Japan PRTR

Specific Class 1 Designated Substance:	Not regulated.
Class 1 Designated Substance:	Not regulated.
Class 2 Designated Substance:	Not regulated.

Ship Safety Law	Not regulated.
Civil Aeronautics law	Not regulated.
Japan Marine Pollution Prevention Law	Not regulated.
High Pressure Gas Safety law	Not regulated.
Gun Powder Control Law	Not regulated.

16. Other information

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 19th edit., 2015 UN
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)
JIS Z 7252:2014, JIS Z 7253:2012
NITE CHRIP (<http://www.safe.nite.go.jp/japan/sougou/view/SystemTop.jp.faces>)

General Disclaimer

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It are advised to make their own tests to determinate the safety and suitability of each such product or combination for their own purposes.

Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Ethanol
Product code: Ethanol
SDS NO: ETOH_JPE_1

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KURABO INDUSTRIES LTD.
Address: Neyagawa Techno Center, 14-5 Shimokida-cho, Neyagawa, Osaka, 572-0823 JAPAN
Division: Bio-Medical department
Telephone number: +81-72-820-3079
FAX: +81-72-820-3095

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the product: Reagents for automated nucleic acid isolation system
Uses advised against: For research use only

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL HAZARDS	Flammable liquids: Category 2
HEALTH HAZARDS	Serious eye damage / eye irritation: Category 2B Carcinogenicity: Category 1A Reproductive toxicity: Category 1A Specific target organ systemictoxicity – single exposure: Category 3(respiratory tract irritation) Category 3(Narcotic effect) Specific target organ systemictoxicity – Repeated exposure Category 1(liver) Category 2(Central nervous system)

Label elements



Signal word: Danger

HAZARD STATEMENT

H225 Highly flammable liquid and vapor
H320 Causes eye irritation
H350 May cause cancer
H360 May damage fertility or the unborn child
H335 May cause respiratory irritation
H336 May cause drowsiness or dizziness
H372 Causes damage to organs through prolonged or repeated exposure
H373 May cause damage to organs through prolonged or repeated exposure

PRECAUTIONARY STATEMENT

Prevention

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fumes/gas/mist/vapours/spray.
P261 Avoid breathing dust/fumes/gas/mist/vapours/spray.
P264 Wash contaminated parts thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313: If exposed: Call a POISON CENTER or doctor/physician.
- P312 Call a POISON CENTER or doctor if you feel unwell.
- P314 Get medical advice/attention if you feel unwell.
- P337 + P313 If eye irritation persists: Get medical advice/attention.
- P370 + P378: In case of fire: Use CO2, dry chemical, or foam to extinguish.

Storage

- P405 Store locked up.
- P403 + P233 Store in a well ventilated place. Keep container tightly closed.
- P235 Keep cool.

Disposal

- P501 Dispose of contents/container in accordance with local/national regulation.

3. Composition/information on ingredients

Mixture/Substance selection Substance

Ingredient name	Content(%)	CAS No.
Ethanol	99.5	64-17-5

Note : The figures shown above are not the specifications of the product.
 Generally chemical substances greater than 1% of the total are listed.

4. First-aid measures

Descriptions of first-aid measures	Use personal protective equipment as required.
IF INHALED	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair)	Remove contaminated clothing. Wash with plenty of soap and water. If symptoms persist, 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. Immediate medical attention is required.
IF SWALLOWED	Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

5. Fire-fighting measures

Extinguishing media	
Suitable extinguishing media	Dry chemical, CO2, water spray or alcohol-resistant foam, Water spray (fog)
Extinguishing media to avoid	No information available.
Special extinguishing method	No information available.
Specific hazards arising from the chemical product	Extremely flammable
Protection of fire-fighters	Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. Accidental release measures

Personnel precautions, protective equipment and emergency measures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind

Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated. See Section 12 for additional ecological information.

Clean-up methods and materials and containment measures

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and storage**Precautions for safe handling**

Handling	Technical measures	Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents.
	Local and general ventilation	Use with local exhaust ventilation.
	Precautions	Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.
Storage	Safe handling advice	Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).
	Suitable storage conditions	Store away from sunlight in well-ventilated place at room temperature (preferably cool). Keep container tightly closed.
	Safe packaging materials	Glass
	Incompatible substances	Strong oxidizing agents

8. Exposure controls/personal protection**Engineering measures**

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Ethanol 64-17-5	N/A	N/A	STEL: 1000 ppm

Personal protective equipment

Respiratory protection	gas mask for organic gas
Hand protection	Protection gloves
Eye protection	protective eyeglasses or chemical safety goggles
Skin and body protection	Wear suitable protective clothing, protective boots.

Hygiene measures

When using do not eat, drink or smoke.

9. Physical and Chemical Properties**Information on basic physical and chemical properties**

Physical properties	
Appearance:	Liquid
Color:	Colourless, Clear
Odor:	characteristic odor
pH:	No data available
Melting point/freezing point:	-117°C
Boiling point, initial boiling point and boiling range	78°C
Flash point:	13°C
Upper/lower flammability or explosive limits	
Upper:	19.0 vol%
Lower:	3.3 vol%
Specific Gravity / Relative density:	0.789-0.791
Auto-ignition temperature:	371°C
Solubility	
Water , Diethyl ether:	soluble
n-Octanol/water partition coefficient:(log Pow):	-0.32
Auto-ignition temperature:	371°C

10. Stability and Reactivity

Chemical stability	Stable under recommended storage conditions.
Reactivity	No data available
Hazardous reactions	May cause ignition on contact with strong oxidizing agents
Conditions to avoid	Extremes of temperature and direct sunlight, Heat, flames and sparks
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Carbon monoxide (CO), Carbon dioxide (CO ₂)

11. Toxicological Information**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ethanol	6200mg/kg(Rat)	N/A	20000ppm/10H(Rat)

Chemical Name	Acute toxicity –oral– source information	Acute toxicity –dermal– source information	Acute toxicity – inhalation gassource information
Ethanol	LD50(Rat) : 6,200 mg/kg, 11,500 mg/kg, 17,800 mg/kg, 13,700 mg/kg(PATY(6th, 2012)), 15,010 mg/kg, 7,000–11,000	LDLo(Rabbit) = 20,000 mg/kg(SIDS(2005))	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity – inhalation vapor– source information	Acute toxicity – inhalation dustsource information	Acute toxicity – inhalation mistsource information
Ethanol	LC50(Rat) = 63,000 ppmV (DFGOT vol.12 (1999)), 66,280 ppmV(124.7 mg/L) (SIDS	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin corrosion/irritation

Chemical Name	Skin corrosion irritation source information
Ethanol	Based on the NITE GHS classification results.

Serious eyedamage/eye irritation

Chemical Name	Serious eye damage source information
Ethanol	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory, Skin sensitization source information
Ethanol	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	Mutagenic source information
Ethanol	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Ethanol	A3 (ACGIH (7th, 2012))

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Ethanol 64–17–5	Known	Group 1	A3	–

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Ethanol	Based on the NITE GHS classification results.

STOT–single exposure

Chemical Name	STOT –single exposure– source information
Ethanol	Based on the NITE GHS classification results.

STOT–repeated exposure

Chemical Name	STOT –repeated exposure– source information
Ethanol	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Ethanol	Based on the NITE GHS classification results.

12. Ecological Information

Bioaccumulation

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ethanol	EC50: Chlorella alga 1000 mg/L 96 h	LC50: Fathead minnow >100mg/L 96h LC50: Oncorhynchus mykiss =11200ppm 96h	EC50: Daphnia magna 5463 mg/L 48 h

Persistence and degradability Degree of decomposition: 89 % by BOD

Bioaccumulative potential No information available

Mobility in soil No information available

Hazard to the ozone layer Mobility No information available

13. Disposal considerations**Waste from residues**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. Transport Information

ADR/RID	UN number	1170
	Class	3
	Proper Shipping Name	Ethanol
	Packing group	II
	Marine pollutant	Not applicable
IMDG	UN number	1170
	Class	3
	Proper Shipping Name	Ethanol
	Packing group	II
	Marine pollutant	Not applicable
	MARPOL 73/78 Annex II and liquid substances to be bulk loaded by IBC code	No information available
IATA	UN number	1170
	Class	3
	Proper Shipping Name	Ethanol solution
	Packing group	II
	Environmentally Hazardous Substance	Not applicable

15. Regulatory Information**International Inventories**

EINECS/ELINCS	Listed
TSCA	Listed

Japanese regulations**Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances**

Regulated. (2)-202

Industrial Safety and Health Act

Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.61

Dangerous Substances – Flammable Substance (Enforcement Order Attached Table 1 Item4)

Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)

Poisonous and Deleterious Substances Control Law Not regulated.

Fire Service Law

Category IV, alcohols, dangerous grade 2 water-soluble

Regulations for the carriage and storage of dangerous goods in ship

Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)

Japan PRTR Not regulated.

Civil Aeronautics law

Flammable Liquids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)

Japan Marine Pollution Prevention Law

Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Z

16. Other information

GHS classification and labelling

Flam. Liq. 2: H225
Eye Irrit. 2B: H320
Carc. 1A: H350
Repr. 1A: H360
STOT SE 3: H335, H336
STOT RE 1: H372
STOT RE 2: H373

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