KKURABO

SAFETY DATA SHEET

QuickGene-AutoS RNA Tissue Kit (AS-RT)

Name of substance	Classification acc. to GHS	Pictograms
Lysis Buffer LRT-02	Acute Tox. 4: H302	
	Skin Irrit. 2: H315	
	Eye Irrit. 2: H319	
Wash Buffer WRT-S1	Flam. Liq. 2: H225	
	Eye Irrit. 2A: H319	
	Carc. 1A: H350	$\land \land \land$
	Repr. 1A: H360	
	STOT SE 3: H335, H336	$\vee \vee \vee$
	STOT RE 1: H372	
	STOT RE 2: H373	
Solubilization Buffer		
SRT-02		
Elution Buffer CRT-S1		
Ethanol	Flam. Liq. 2: H225	
	Eye Irrit. 2B: H320	
	Carc. 1A: H350	$\wedge \wedge \wedge$
	Repr. 1A: H360	
	STOT SE 3: H335, H336	$\vee \vee \vee$
	STOT RE 1: H372	
	STOT RE 2: H373	

KURABO INDUSTRIES LTD.

Bio-Medical Department

Address

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 Telephone Number
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Date of issue 6/19/2019

lentification of the substance/mixture and o	f the company/undertaking
Product identifier:	
Product name:	Lysis Buffer
Product code:	LRT-02
SDS NO:	LRT02_JPE_1.1
Details of the supplier of the safety data	sheet
Manufacturer/Supplier:	KURABO INDUSTRIES LTD.
Address:	Advanced Technology Center, 14-30 Shimokida-cho, Neyagawa, Osaka, 572-0823 JAP
Division:	Bio-Medical department
Telephone number:	+81-72-820-3079
FAX:	+81-72-820-3095
	ice or mixture and uses advised against
	t: Reagents for automated nucleic acid isolation system
Uses advised against: For research use	-
Uses auvised against. For research use	s only
azards identification	
GHS classification and label elements of	•
Classification of the substance or mixture	
HEALTH HAZARDS	Acute toxicity Oral: Category 4
	Skin corrosion/irritation: Category 2
	Serious eye damage/eye irritation: Category 2
(Note) GHS classification v	vithout description: Not applicable/Out of classification/Not classifiable
Label elements	
	^
Signal word:	Warning
HAZARD STATEMENT	
H302 Harmful if swallowed	
H315 Causes skin irritation	
H319 Causes serious eye ir	
PRECAUTIONARY STATEM	IENT
Prevention	
P264 Wash contaminated p	arts thoroughly after handling.
P280 Wear protective glove	S.
P280 Wear eye protection/	face protection.
	moke when using this product.
	Vash with plenty of soap and water.
	n occurs: Get medical advice/attention.
P362 + P364 Take off cont	aminated clothing and wash it before reuse.
P305 + P351 + P338 IF IN I	EYES: Rinse cautiously with water for several minutes. Remove
contact lenses, if present a	nd easy to do. Continue rinsing.
P337 + P313 If eye irritatio	n persists: Get medical advice/attention.
P330 Rinse mouth.	
	ED: Call a POISON CENTER or doctor/physician if you feel unwell.
Disposal	
-	
	container in accordance with local/national regulation.
Four Dispose of contents/	
Foor Dispose of concents/	
F JOT Dispose of contents/	
F JOT Dispose of contents/	
F JOT Dispose of contents/	

xture/Substance selection Mixture			
Ingredi	ent name	Content(%)	CAS No.
guanidinium thiocyanate		30-40	50-01-1
hydrochloride salts of aming	palcohol	1-5	-
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	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.

Precaution	s 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.
	Safepackagingmaterials	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	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.

Information on basic physical and chemi	cal properties		
Physical properties	•••		7
Appearance:	Liquid		
Color:	Colourless, Clear		
Odor:	Odourless		
pH:	6.5 Approx.		
Flash point:	Not flammable		
Auto-ignition temperature	Not flammable		
Solubility	•		
Solubility in water:	Completely soluble		
	•		
ability and Reactivity			
Chemical stability	Stable under no	rmal storage/handling con	ditions.
Conditions to avoid	Freezing. Protec	ct against direct sunlight.	
Hazardous decomposition products	CO, CO2 Nitrog	en oxides (NOx).	
oxicological Information			
Acute toxicity	Harmful if swalld	owed.	
TestResults	Acute OralLD50Rat	::> 500mg/kg	
Skin corrosion/irritation	moderate		
Serious eyedamage/eye irritation	May cause slight tra	ansient (temporary) eye irritatior	۱.
Carcinogenicity	Substances in grou	p [1;2A;2B] by IARC (Internation	al Agency for Research on Cancer):None
ological Information			
Bioaccumulation	Not established		
	Not established.		
Mobilityinsoil			
Mobilityinsoil Otherhazardous effects sposal considerations When your own wastewater treatment pla management professional with manifests	Not established	ollect entire waste and the	-
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Otherhazardous effects sposal considerations When your own wastewater treatment pla management professional with manifests product or waste. mansport Information	Not established ant is not available, c for industrial waste. Not applicable t	ollect entire waste and the Follow the laws and regulat	ions in your country while disposing of t
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	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 a	nd 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	Not regulated.
	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 PRTF	R	
	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 Aerona	utics law	Not regulated.
Japan Marin	e Pollution Prevention Law	Not regulated.
High Pressu	re Gas Safety law	Not regulated.
Gun Powder	Control Law	Not regulated.

16. Other information

GHS classification and labelling Acute Tox. 4: H302 Skin Irrit. 2: H315 Eye Irrit. 2: H319

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

Date of issue 6/19/2019

ntification of the substance/mixture and of the Product identifier:	ana aominantat amanang
Product Identifier: Product name:	Wash Buffer
Product code:	WRT-S1
SDS NO:	WRTS1 JPE 1
Details of the supplier of the safety data s	
Manufacturer/Supplier:	KURABO INDUSTRIES LTD.
Address:	Advanced Technology Center, 14-30 Shimokida-cho, Neyagawa, Osaka, 572-0823 JAPA
Division:	Bio-Medical department
Telephone number:	+81-72-820-3079
FAX:	+81-72-820-3095
Relevant identified uses of the substance	e or mixture and uses advised against
	Reagents for automated nucleic acid isolation system
Uses advised against: For research use	only
ards identification	
GHS classification and label elements of t Classification of the substance or mixture	he product
PHYSICAL HAZARDS	Flormable liquido: Catagon, 2
HEALTH HAZARDS	Flammable liquids: Category 2
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)
Signal word:	Danger
-	Danger
HAZARD STATEMENT	
HAZARD STATEMENT H225 Highly flammable liquid	and vapour
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri	and vapour itation
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory	and vapour itation irritation
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness	and vapour itation irritation
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause cancer	and vapour itation or dizziness
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause cancer H360 May damage fertility or	and vapour itation irritation or dizziness the unborn child
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or	and vapour itation irritation or dizziness [.] the unborn child gans through prolonged or repeated exposure
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to	and vapour itation irritation or dizziness the unborn child gans through prolonged or repeated exposure o organs through prolonged or repeated exposure
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HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all	and vapour itation irritation or dizziness • the unborn child gans through prolonged or repeated exposure o organs through prolonged or repeated exposure ENT ions before use. safety precautions have been read and understood.
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all P210 Keep away from heat, I	and vapour itation irritation or dizziness • the unborn child gans through prolonged or repeated exposure o organs through prolonged or repeated exposure ENT ions before use. safety precautions have been read and understood. not surfaces, sparks, open flames and other ignition sources. No smoking.
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all P210 Keep away from heat, I P233 Keep container tightly	and vapour itation irritation or dizziness the unborn child gans through prolonged or repeated exposure organs through prolonged or repeated exposure organs through prolonged or repeated exposure ENT ions before use. safety precautions have been read and understood. not surfaces, sparks, open flames and other ignition sources. No smoking. closed.
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HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all P210 Keep away from heat, H P233 Keep container tightly P240 Ground/bond containe P241 Use explosion-proof el P242 Use only non-sparking P243 Take precautionary me	and vapour tation irritation or dizziness the unborn child gans through prolonged or repeated exposure organs through prolonged or repeated exposure organs through prolonged or repeated exposure ENT ions before use. safety precautions have been read and understood. not surfaces, sparks, open flames and other ignition sources. No smoking. closed. r and receiving equipment. ectrical/ventilating/lighting/equipment. tools. asures against static discharge.
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all P210 Keep away from heat, I P233 Keep container tightly P240 Ground/bond containe P241 Use explosion-proof el P242 Use only non-sparking P243 Take precautionary me P260 Do not breathe dust/fu	and vapour tation irritation or dizziness the unborn child gans through prolonged or repeated exposure o organs through prolonged or repeated exposure o organs through prolonged or repeated exposure o organs through prolonged or repeated exposure ENT tions before use. safety precautions have been read and understood. not surfaces, sparks, open flames and other ignition sources. No smoking. closed. r and receiving equipment. ectrical/ventilating/lighting/equipment. tools. asures against static discharge. umes/gas/mist/vapours/spray.
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all P210 Keep away from heat, I P233 Keep container tightly P240 Ground/bond containe P241 Use explosion-proof el P242 Use only non-sparking P243 Take precautionary me P260 Do not breath edust/ft P261 Avoid breathing dust/f	and vapour itation irritation or dizziness T the unborn child gans through prolonged or repeated exposure organs through prolonged or repeated exposure organs through prolonged or repeated exposure ENT ions before use. safety precautions have been read and understood. not surfaces, sparks, open flames and other ignition sources. No smoking. closed. r and receiving equipment. ectrical/ventilating/lighting/equipment. tools. asures against static discharge. umes/gas/mist/vapours/spray.
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all P210 Keep away from heat, I P233 Keep container tightly P240 Ground/bond containe P241 Use explosion-proof el P242 Use only non-sparking P243 Take precautionary me P260 Do not breath edust/ft P261 Avoid breathing dust/f	and vapour itation irritation or dizziness the unborn child gans through prolonged or repeated exposure o organs through prolonged or repeated exposure o organs through prolonged or repeated exposure ENT ions before use. safety precautions have been read and understood. not surfaces, sparks, open flames and other ignition sources. No smoking. closed. r and receiving equipment. ectrical/ventilating/lighting/equipment. tools. asures against static discharge. umes/gas/mist/vapours/spray. umes/gas/mist/vapours/spray. ts thoroughly after handling.
HAZARD STATEMENT H225 Highly flammable liquid H319 Causes serious eye irri H335 May cause respiratory H336 May cause drowsiness H350 May cause drowsiness H350 May cause cancer H360 May damage fertility or H372 Causes damage to or H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until all P210 Keep away from heat, I P233 Keep container tightly P240 Ground/bond containe P241 Use explosion-proof el P242 Use only non-sparking P243 Take precautionary me P260 Do not breath edust/ft P261 Avoid breathing dust/f	and vapour itation irritation or dizziness • the unborn child gans through prolonged or repeated exposure o organs through prolonged or repeated exposure o organs through prolonged or repeated exposure ENT ions before use. safety precautions have been read and understood. not surfaces, sparks, open flames and other ignition sources. No smoking. closed. r and receiving equipment. ectrical/ventilating/lighting/equipment. tools. asures against static discharge. umes/gas/mist/vapours/spray.

Safety Data Sheet

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	65 - 75	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.

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.
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 chem	ical 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 sto	Indling and storage			
Precaution	s 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).		
	Safe handling 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.

Exposure limits

1	Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
1	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			
Liquid			
Colourless, Clear			
Alcohol odor			
7.6			
no data			
no data			
Completely soluble			

10. Stability and Reactivity

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

11. Toxicological Information

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(PATTY(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	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Skin co	rrosion irritation source inf	ormation	
Ethanol	Based o	n the NITE GHS classification	on results.	
erious eyedamage/eye irritation				
Chemical Name	Serio	us eye damage source infor	mation	
Ethanol	Based o	n the NITE GHS classification	on results.	
espiratory or skin sensitization				
Chemical Name	Respirator	, Skin sensitization source	information	
Ethanol	Based o	n the NITE GHS classification	on results.	
eproductive cell mutagenicity				
Chemical Name	1	Autagenic source information	on	
Ethanol	Based o	n the NITE GHS classification	on results.	
arcinogenicity				
Chemical Name	Car	cinogenicity source inform	ation	
Ethanol		A3 (ACGIH (7th, 2012))		
Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Ethanol 64-17-5	Known	Group 1	A3	_
eproductive toxicity				
Chemical Name	Repro	ductive toxicity source info	rmation	
Ethanol	Based o	n the NITE GHS classification	on results.	
TOT-single exposure				
Chemical Name	STOT -	single exposure- source in	formation	
Ethanol	Based o	n the NITE GHS classification	on results.	
TOT-repeated exposure				
Chemical Name	STOT -re	peated exposure- source i	information	
Ethanol	Based o	n the NITE GHS classification	on results.	
spiration hazard				
Chemical Name	Aspi	ration Hazard source inform	nation	
Ethanol	Based o	n the NITE GHS classificatio	on results	

12. Ecological Information

Bioaccumulat	tion			
	Chemical Name	Algae/aquatic plants	Fish	Crustacea
	Ethanol	EC50: Chlorella alga 1000 mg/L 96 h	LC50: Fathead minnow >100mg/L 96h LC50:	EC50: Daphnia magna 5463
	Ethanoi		Oncorhychus mykiss =11200ppm 96h	mg/L 48 h
Persistence a	and degradability	Degree of decomposition:	89 % by BOD	
Bioaccumulat	tive potential	No information available		
Mobility in s	oil	No information available		
Hazard to th	e 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	II
Marine pollutant	Not applicable
MARPOL 73/78 Annex II and liquid substances to be bulk loaded by IBC code	Not applicable

International Inventories		
EINECS/ELINCS	Listed	
TSCA	Listed	
Japanese regulations		
Law concerning the Examination and	Regulation of Manufa	acture etc. of Chemical Substances
Regulated.	(2)-202	
Industrial Safety and Health Act		
Notifiable Substances (L	aw Art.57-2, Enforcem	ent Oder Art.18-2 Attached Table No.9)No.61
Dangerous Substances -	Flammable Substance	(Enforcement Order Attached Table 1 Item4)
Harmful Substances Who	ose Names Are to be Ir	ndicated on the Label (Law Art.57, Para.1,
Enforcement Order Art.1	8)	
Poisonous and Deleterious Substan	ces Control Law	Not regulated.
Fire Service Law		
Class 4 Flammable Liquid	ds:	Regulated. alcohols (water soluble)
Regulations for the carriage and sto	rage of dangerous goo	ods in ship
Flammable Liquids (Ordina	ance Art.3, Ministry of T	ransportation Ordinance Regarding
Transport by Ship and St	orage, Attached Table	1)
Japan PRTR		Not regulated.
Civil Aeronautics law		
Flammable Liquids (Ordir	nance Art.194, MITL No	ortification for Air Transportation of Explosives etc., Attached Table 1)
Japan Marine Pollution Prevention I	aw	
Enforcement ordinance A	ppendix No. 1 Noxious li	quid substance Category Z

GHS classification and labelling Flam. Liq. 2: H225 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

Date of issue 6/19/2019

Product identifier:				
Product name:	Solubilization Bu	uffer		
Product code:	SRT-02			
SDS NO:	SRT02_JPE_1.1			
Details of the supplier of the safety da	ta sheet			
Manufacturer/Supplier:	KURABO INDUS	STRIES LTD.		
Address:	Advanced Technology Center, 14-30 Shimokida-cho, Neyagawa, Osaka, 572-0823 🛛			
Division:	Bio-Medical department			
Telephone number:	+81-72-820-30	79		
FAX:	+81-72-820-30	95		
Relevant identified uses of the substa	ance or mixture and	uses advised against		
Relevant identified uses of the produ	ct: Reagents for aut	omated nucleic acid isola	ation system	
Uses advised against: For research u	se only			
zards identification				
GHS classification and label elements of	•			
Classification of the substance or mixtu				
Not applicable to GHS class	ification			
Label elements				
No hazard pictogram No Signal word				
No hazard pictogram No Signal word				
No hazard pictogram	Mixture			
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection	Mixture	Content(%)	CAS No.	
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection	nt name	Content(%)	CAS No.	
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie	o nt name tty acid ester		CAS No. 	
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat	o nt name tty acid ester	10-20	CAS No. — — — 7732–18–5	
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water	o nt name ity acid ester alcohol	10-20 1-5		
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown	above are not the spe	10-20 1-5 Balance cifications of the product.		
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown	above are not the spe	10-20 1-5 Balance		
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown	above are not the spe	10-20 1-5 Balance cifications of the product.		
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica	alcohol above are not the spe al substances greater t	10-20 1-5 Balance cifications of the product.		
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica	alcohol above are not the spe al substances greater t Rescuers shoul	10-20 1-5 Balance cifications of the product. han 1% of the total are liste		nt suitable for situation.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures	alcohol above are not the spe al substances greater t Rescuers shoul Remove person	10-20 1-5 Balance reifications of the product. han 1% of the total are liste d wear proper personal p	ed.	nt suitable for situation.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures	atty acid ester alcohol above are not the spe al substances greater t Rescuers shoul Remove person Call a POISON	10-20 1-5 Balance reifications of the product. han 1% of the total are liste d wear proper personal p to fresh air and keep co CENTER or doctor/phys		nt suitable for situation. hing. well.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED	alcohol above are not the spe al substances greater t Rescuers shoul Remove person Call a POISON Remove contan	10-20 1-5 Balance reifications of the product. han 1% of the total are liste d wear proper personal p to fresh air and keep co CENTER or doctor/phys ninated clothing. Wash v		nt suitable for situation. hing. well.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair)	alcohol above are not the spe al substances greater t Rescuers shoul Remove person Call a POISON Remove contan If skin irritation	10-20 1-5 Balance cifications of the product. han 1% of the total are liste d wear proper personal p to fresh air and keep co CENTER or doctor/phys ninated clothing. Wash v occurs: Get medical adv	ad. 7732-18-5 ad. protective equipmer perfortable for breat sician if you feel unv vith plenty of soap a vice/attention.	nt suitable for situation. hing. well. and water.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED	alcohol above are not the spe al substances greater t Rescuers shoul Remove person Call a POISON Remove contan If skin irritation Rinse cautiousl	10-20 1-5 Balance cifications of the product. han 1% of the total are liste d wear proper personal p to fresh air and keep co CENTER or doctor/phys ninated clothing. Wash v occurs: Get medical adv y with water for several		nt suitable for situation. hing. well. and water.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair)	at name at acid ester alcohol above are not the spe al substances greater t Rescuers shoul Remove person Call a POISON Remove contan If skin irritation Rinse cautiousl if present and e	10-20 1-5 Balance cifications of the product. han 1% of the total are liste d wear proper personal p to fresh air and keep co CENTER or doctor/phys ninated clothing. Wash v occurs: Get medical adv y with water for several pasy to do. Continue rins		nt suitable for situation. hing. well. and water.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair) IF IN EYES	Int name ity acid ester alcohol above are not the spe al substances greater t Rescuers shoul Remove person Call a POISON Remove contan If skin irritation Rinse cautiousl if present and e If eye irritation	10-20 1-5 Balance cifications of the product. han 1% of the total are liste d wear proper personal p to fresh air and keep co CENTER or doctor/phys ninated clothing. Wash v occurs: Get medical adv y with water for several		nt suitable for situation. hing. well. and water.
No hazard pictogram No Signal word mposition/information on ingredients Mixture/Substance selection Ingredie polyoxyethylene sorbitan fat hydrochloride salts of amino Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair)	Int name ity acid ester alcohol above are not the spe al substances greater t Rescuers shoul Remove person Call a POISON Remove contan If skin irritation Rinse cautiousl if present and e If eye irritation Rinse mouth.	10-20 1-5 Balance cifications of the product. han 1% of the total are liste d wear proper personal p to fresh air and keep co CENTER or doctor/phys ninated clothing. Wash v occurs: Get medical adv y with water for several pasy to do. Continue rins	ad. 7732–18–5 ad. protective equipmer perfortable for breat sician if you feel unv vith plenty of soap a vice/attention. minutes. Remove co ing. vice/attention.	nt suitable for situation. hing. well. and water. ontact lenses,

Safety Data Sheet

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

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.
	Safepackagingmaterials	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

Physical pro	operties	
	Appearance:	Liquid
	Color:	Colourless to light yellow, Clear
	Odor:	Practically odourless
	pH:	6 Approx.
	Flash point:	Not flammable
	Auto-ignition temperature	Not flammable
Solubility		
	Solubility in water:	Completely soluble

10. Stability and Reactivity

Chemical stability Conditions to avoid Hazardous decomposition products

Stable under normal storage/handling conditions. Freezing. Protect against direct sunlight. CO, CO2 Nitrogen oxides (NOx).

11. Toxicological Information

Acute toxicity TestResults

Skin corrosion/irritation

Acute Oral LD50 Rat: > 2000 mg/kg No irritation

	edamage/eye irritation	non irritant	
Carcinoger	nicity	Substances in group [1;2A;2B] by IARC (International Agency for Research on Cancer):None
2. Ecological Info	ormation		
Bioaccum		Not established.	
Mobilityin		Not established.	
	ardous effects	Not established	
3. Disposal cons	iderations		
When your	own wastewater treatment plant plant plant plant plant professional with manifests		ect entire waste and then charge to a licensed industrial waste llow the laws and regulations in your country while disposing of this
4. Transport Info	ormation		
	UN No, UN CLASS	Not applicable to	UN NO.
Marine tra	nsportation is regulated by IMD	G Code. Air transporta	tion is regulated by IATA Dangerous Goods Regulations.
	IMDG	Not regulated as o	langerous goods.
	ΙΑΤΑ	Not regulated as o	langerous goods.
	Emergency Response Guid	le Number	171
5. Regulatory Inf	ormation		
		gulation of Manufactu	re etc. of Chemical Substances
	Class 1 Specified Chemical	-	Not regulated.
	Class 2 Specified Chemical		Not regulated.
	Type 1 Monitoring Chemica		Not regulated.
	Type 2 Monitoring Chemica		Not regulated.
			-
Ter du catada I	Type 3 Monitoring Chemica	I Substance:	Not regulated.
Industrial	Safety and Health Law		N
	Dangerous Substances Flar		Not regulated.
	Dangerous Substances Flar		Not regulated.
	Dangerous Substances Oxi	-	Not regulated.
	Dangerous Substances Exp		Not regulated.
	Dangerous Substances Igni	table:	Not regulated.
	Harmful Substances Carcin	ogen:	Not regulated.
	Class 1 Designated Chemic	al Substances:	Not regulated.
	Class 2 Designated Chemic	al Substances:	Not regulated.
	Class 3 Designated Chemic	al Substances:	Not regulated.
	Class 1 Organic Solvents P	reparations:	Not regulated.
	Class 2 Organic Solvents P	reparations:	Not regulated.
	Class 3 Organic Solvents P	reparations:	Not regulated.
	Notifiable Substance:		Not regulated.
	Labeling Requirements:		Not regulated.
	Others:		Not regulated.
Poisonous	and Deleterious Substances	Control Law	
	Specified Poisonous Substa	ance – Main Law:	Not regulated.
	Specified Poisonous Substa	ance – Cabinet Order:	Not regulated.
	Poisonous Substances – M	ain Law:	Not regulated.
	Poisonous Substances - Ca	abinet Order:	Not regulated.
	Deleterious Substances - N	/lain Law:	Not regulated.
	Deleterious Substances - (Cabinet Order:	Not regulated.
	Enforcement Order Article	32-2:	Not regulated.
	Enforcement Order Article		Not regulated.
	Not Considered Poisonous:		Not regulated.
	Not Considered Deleterious	:	Not regulated.
	Cabinet Order, Preparation		Not regulated.
Fire Servi	-		U
1 1 0 001 01	Class 1 Oxidizing Solids:		Not regulated.
	-		-
	Class 7 Flammable Solidar		
	Class 2 Flammable Solids:	ustibility and	Not regulated
	Class 2 Flammable Solids: Class 3 Spontaneous comb Water-reactivity Substanc	-	Not regulated. Not regulated. 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 PRT	R	
	Specific Class 1 Designated Substance:	Not regulated.
	Class 1 Designated Substance:	Not regulated.
	Class 2 Designated Substance:	Not regulated.
Ship Safet	y Law	Not regulated.
Civil Aeron	autics law	Not regulated.
Japan Mari	ne Pollution Prevention Law	Not regulated.
High Press	ure Gas Safety law	Not regulated.
Gun Powde	er 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

Date of issue 6/19/2019

ntification of the substance/mixture and	of the company/undertal	king		
Product identifier:				
Product name:	Elution Buffer			
Product code:	CRT-S1			
SDS NO:	CRTS1_JPE_1.1			
Details of the supplier of the safety da				
Manufacturer/Supplier:	KURABO INDUSTRIE			
Address:	-		okida-cho, Neyagawa, C)saka, 572-0823 JA
Division:	Bio-Medical departm	ent		
Telephone number:	+81-72-820-3079			
FAX:	+81-72-820-3095			
Relevant identified uses of the substa		-	ion avatam	
Relevant identified uses of the produ Uses advised against: For research u	-		lion system	
Uses advised against. For research u	se only			
ards identification				
GHS classification and label elements of	•			
Classification of the substance or mixtu	re			
Not applicable to GHS class	ification			
Label elements				
No hazard pictogram				
No Signal word				
nposition/information on ingredients				
Mixture/Substance selection	Mixture			
Ingradia	nt nome	Contont(%)	CAS No	Г
Ingredie Water	nt name	Content(%)	CAS No.]
Water		80-100	CAS No. 7732-18-5]
Water Note : The figures shown	above are not the specifica	80-100 tions of the product.	7732-18-5]
Water Note : The figures shown		80-100 tions of the product.	7732-18-5]
Water Note : The figures shown	above are not the specifica	80-100 tions of the product.	7732-18-5]
Water Note : The figures shown Generally chemica	above are not the specifica al substances greater than 1	80-100 tions of the product. % of the total are listed	7732-18-5	itable for situation.
Water Note : The figures shown Generally chemica st-aid measures	above are not the specifica al substances greater than 1 Rescuers should we	80-100 tions of the product. % of the total are listed ar proper personal pr	7732-18-5 I.	
Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fi	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor	7732-18-5	
Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fi Call a POISON CEN	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor TER or doctor/physi	7732-18-5 d. rotective equipment su mfortable for breathing.	
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Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fi Call a POISON CEN Remove contaminato If skin irritation occu	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor TER or doctor/physi ed clothing. Wash wi urs: Get medical advi	7732-18-5 d. rotective equipment su mfortable for breathing. cian if you feel unwell. th plenty of soap and v	vater.
Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair)	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fi Call a POISON CEN Remove contaminato If skin irritation occu	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor TER or doctor/physi ed clothing. Wash wi urs: Get medical advi- h water for several m	7732-18-5 d. rotective equipment su mfortable for breathing. cian if you feel unwell. th plenty of soap and v ce/attention. ninutes. Remove contact	vater.
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Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair) IF IN EYES IF SWALLOWED	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously wit if present and easy If eye irritation persi Rinse mouth.	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor TER or doctor/physi ed clothing. Wash wi urs: Get medical advi- h water for several m to do. Continue rinsir sts: Get medical adv	7732-18-5 d. rotective equipment su mfortable for breathing, cian if you feel unwell. th plenty of soap and v ce/attention. hinutes. Remove contact ng. ice/attention.	vater.
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Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair) IF IN EYES IF SWALLOWED e-fighting measures Extinguishing media Suitable extinguishing media Extinguishing media to avoid	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fi Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously wit if present and easy fi If eye irritation persi Rinse mouth. Call a POISON CEN Carbon dioxide, dry None.	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor TER or doctor/physi ed clothing. Wash wi urs: Get medical advi h water for several m to do. Continue rinsir sts: Get medical adv TER or doctor/physi	7732-18-5	vater. ot lenses,
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Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair) IF IN EYES IF SWALLOWED e-fighting measures Extinguishing media Suitable extinguishing media Extinguishing media to avoid	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously wit if present and easy f If eye irritation persi Rinse mouth. Call a POISON CEN Carbon dioxide, dry None. Keep personnel remothe environment. Dike and collect wat	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor TER or doctor/physi ed clothing. Wash wi urs: Get medical advi- h water for several m to do. Continue rinsir sts: Get medical adv TER or doctor/physi chemical and protein	7732-18-5	vater. ot lenses,
Water Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair) IF IN EYES IF SWALLOWED e-fighting measures Extinguishing media Suitable extinguishing media Extinguishing media to avoid Special fire fighting	above are not the specifica al substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously wit if present and easy If eye irritation persi Rinse mouth. Call a POISON CEN Carbon dioxide, dry None. Keep personnel remothe environment.	80-100 tions of the product. % of the total are listed ar proper personal pr resh air and keep cor TER or doctor/physi ed clothing. Wash wi urs: Get medical advi- h water for several m to do. Continue rinsir sts: Get medical adv TER or doctor/physi chemical and protein oved from and upwin er used to fight fire l	7732-18-5	vater. ot lenses,

Safety Data Sheet

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.

Precaution	s 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.
	Safepackagingmaterials	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 chemi	cal properties
Physical pro	operties	
	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	
TestResults	Acute Oral LD50 Rat: > 2000 mg/kg
Skin corrosion/irritation	No irritation
Serious eyedamage/eye irritation	non irritant
Carcinogenicity	Substances in group [1;2A;2B] by IARC (International Agency for Research on Cancer):None

12. Ecological Information

Bioaccumulation
Mobilityinsoil
Otherhazardous effects

Not established. Not established. Not established

	ewater treatment plant is not available, c	collect entire waste and then charge to a licensed industrial waste Follow the laws and regulations in your country while disposing of t
ransport Information		
UN No	, UN CLASS Not applicable t	to UN NO.
Marine transportation	n is regulated by IMDG Code. Air transpo	rtation is regulated by IATA Dangerous Goods Regulations.
IMDG	Not regulated a	s dangerous goods.
ΙΑΤΑ	Not regulated a	s dangerous goods.
egulatory Information		
Law concerning the	Examination and Regulation of Manufac	ture etc. of Chemical Substances
Class	1 Specified Chemical Substance:	Not regulated.
Class	2 Specified Chemical Substance:	Not regulated.
Туре	Monitoring Chemical Substance:	Not regulated.
Type	Monitoring Chemical Substance:	Not regulated.
Туре	Monitoring Chemical Substance:	Not regulated.
Industrial Safety ar	d Health Law	
Dange	rous Substances Flammable:	Not regulated.
Dange	rous Substances Flammable Gases:	Not regulated.
Dange	rous Substances Oxidizing:	Not regulated.
Dange	rous Substances Explosives:	Not regulated.
Dange	rous Substances Ignitable:	Not regulated.
Harmf	ul 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.
Notifia	ble Substance:	Not regulated.
Labeli	ng Requirements:	Not regulated.
Other	:	Not regulated.
Poisonous and Dele	terious Substances Control Law	
Speci	ied Poisonous Substance – Main Law:	Not regulated.
Speci	ied Poisonous Substance – Cabinet Order	r: Not regulated.
Poisor	ous Substances – Main Law:	Not regulated.
Poisor	ous Substances – Cabinet Order:	Not regulated.
Delete	rious Substances – Main Law:	Not regulated.
Delete	rious Substances – Cabinet Order:	Not regulated.
	ement Order Article 32-2:	Not regulated.
	ement Order Article 32-3:	Not regulated.
	onsidered Poisonous:	Not regulated.
	onsidered Deleterious:	Not regulated.
Cabin	et Order, Preparations:	Not regulated.
Fire Service Law	-	-
	1 Oxidizing Solids:	Not regulated.
	2 Flammable Solids:	Not regulated.
	3 Spontaneous combustibility and	Not regulated.
	-reactivity Substances:	Not regulated.
	4 Flammable Liquids:	Not regulated.
	5 Self-Reactive Substances:	Not regulated.
	6 Oxidizing Liquids:	Not regulated.
	ated Flammable Substances:	Not regulated.
	e Reporting Substance:	Not regulated.
Japan PRTR		Hot rogulatou.
-	ic Class 1 Designated Substance:	Not regulated.
-	-	Not regulated. Not regulated.
	1 Designated Substance: 2 Designated Substance:	ואטר ו בצעומנבע.

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

entification of the substance/mixture a	and of the company/undertaking
Product identifier:	
Product name:	Ethanol
Product code:	Ethanol
SDS NO:	ETOH_JPE_1.1
Details of the supplier of the safety	data sheet
Manufacturer/Supplier:	KURABO INDUSTRIES LTD.
Address:	Advanced Technology Center, 14-30 Shimokida-cho, Neyagawa, Osaka, 572-0823 JAF
Division:	Bio-Medical department
Telephone number:	+81-72-820-3079
FAX:	+81-72-820-3095
	ostance or mixture and uses advised against
	oduct: Reagents for automated nucleic acid isolation system
Uses advised against: For researc	h use only
azards identification	
GHS classification and label elemen	•
Classification of the substance or mi	
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
	\mathbf{O} -t
Label elements	Category 1(liver) Category 2(Central nervous system)
	Category 2(Central nervous system)
Label elements Signal word:	
	Category 2(Central nervous system)
Signal word:	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage H373 May cause dam	Category 2(Central nervous system)
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage H373 May cause dam PRECAUTIONARY ST	Category 2(Central nervous system) Danger
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage H373 May cause dam PRECAUTIONARY ST Prevention P201 Obtain special in	Category 2(Central nervous system) Danger
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage H373 May cause dam PRECAUTIONARY ST Prevention P201 Obtain special in P202 Do not handle un	Category 2(Central nervous system) Danger
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage H373 May cause dam PRECAUTIONARY ST Prevention P201 Obtain special in P202 Do not handle un	Category 2(Central nervous system) Danger Danger r e liquid and vapor ation er tility or the unborn child ratory irritation siness or dizziness to organs through prolonged or repeated exposure age to organs through prolonged or repeated exposure ATEMENT het, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause respi H336 May cause drow H372 Causes damage H373 May cause dam PRECAUTIONARY ST. Prevention P201 Obtain special in P202 Do not handle un P210 Keep away from P233 Keep container t	Category 2(Central nervous system) Danger Danger r e liquid and vapor ation er tility or the unborn child ratory irritation siness or dizziness to organs through prolonged or repeated exposure age to organs through prolonged or repeated exposure ATEMENT het, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause drow H372 Causes damage H373 May cause dam PRECAUTIONARY ST. Prevention P201 Obtain special in P202 Do not handle ur P210 Keep away from P233 Keep container to P240 Ground/bond co	Category 2(Central nervous system) Danger Danger I eliquid and vapor ation er tility or the unborn child ratory irritation siness or dizziness to organs through prolonged or repeated exposure age to organs through prolonged or repeated exposure age to organs through prolonged or repeated exposure age to organs through prolonged or repeated exposure atterENT enstructions before use. til all safety precautions have been read and understood. heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. tightly closed.
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Signal word: HAZARD STATEMENT H225 Highly flammable H320 Causes eye irrita H350 May cause canc H360 May damage fert H335 May cause draw H372 Causes damage H373 May cause draw PRECAUTIONARY ST. Prevention P201 Obtain special in P202 Do not handle un P210 Keep away from P233 Keep container to P240 Ground/bond coo P241 Use explosion-p P242 Use only non-sp	Category 2(Central nervous system) Danger Danger liquid and vapor ation er tility or the unborn child ratory irritation siness or dizziness to organs through prolonged or repeated exposure age to organs through prolonged or repeated exposure the organs through prolonged or repeated exposure attement structions before use. til all safety precautions have been read and understood. heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. tightly closed. matiner and receiving equipment. roof electrical/ventilating/lighting/equipment.
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Cofot Data Ch

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,

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	
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5. F

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.
Fire-fighting measures	
Extinguishing media	

Dry chemical, CO2, water spray or alcohol-resistant foam, Water spray (fog)
No information available.
No information available.
l product
Extremely flammable
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.

if present and easy to do. Continue rinsing.

Recoverly, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

andling and sto	-					
Precaution	Precautions for safe handling					
Handling	Technicalmeasures	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.				
	Safe handling advice	Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).				
Storage	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	N/A	N/A	STEL: 1000 ppm		
	64-17-5					
Personal pro	Personal protective equipment					
	Respiratory protection	gas mask for organic ga	s			
	Hand protection	Protection gloves				
	Eye protection	protective eyeglasses or chemical safety goggles				
	Skin and body protection	on Wear suitable protective clothing, protective boots.				

Wear suitable protective clothing, protective boots.

When using do not eat, drink or smoke.

9. Physical and Chemical Properties

Hygiene measures

Information on basic physical and chemical properties			
Physical propert	ies		
A	ppearance:	Liquid	
С	olor:	Colourless, Clear	
0	dor:	characteristic odor	
pl	4:	No data available	
М	elting point/freezing point:	-117°C	
	oiling point, initial boiling point nd boiling range	78°C	
FI	ash point:	13°C	
	pper/lower flammability or plosive limits		
	pper: ower:	19.0 vol% 3.3 vol%	
	pecific Gravity / Relative ensity:	0.789–0.791	
A	uto-ignition temperature:	371°C	
Solubility			
W	ater , Diethyl ether:	soluble	
	-Octanol/water partition pefficient:(log Pow):	-0.32	
Auto-ignition ter	mperature:	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 monooxide (CO), Carbon dioxide (CO2)

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(PATTY(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 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.

Skin corrosion/irritation

Chemical Name	Skin cor	rosion irritation source inf	formation	
Ethanol	Based or	the NITE GHS classification	on results.	
erious eyedamage/eye irritation				
Chemical Name	Seriou	s eye damage source info	rmation	
Ethanol	Based or	the NITE GHS classification	on results.	
espiratory or skin sensitization				
Chemical Name	Respiratory	Respiratory, Skin sensitization source information		
Ethanol	Based or	the NITE GHS classification	on results.	
eproductive cell mutagenicity				
Chemical Name	N	lutagenic source informati	on	
Ethanol	Based or	the NITE GHS classification	on results.	
arcinogenicity				
Chemical Name	Car	cinogenicity source inform	ation	
Ethanol		A3 (ACGIH (7th, 2012))		
Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Ethanol 64-17-5	Known	Group 1	A3	-
productive toxicity				
Chemical Name	Reproductive toxicity source information			
Ethanol	Based on the NITE GHS classification results.			
TOT-single exposure				
Chemical Name	STOT -	single exposure- source in	formation	
Ethanol	Based or	the NITE GHS classification	on results.	
TOT-repeated exposure				
Chemical Name	STOT -re	peated exposure- source	information	
Ethanol	Based or	the NITE GHS classification	on results.	
spiration hazard				
Chemical Name	Aspir	ation Hazard source inforr	mation	
Ethanol	Based or	the NITE GHS classification	on results.	

12. Ecological Information

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ethanol	EC50: Chlorella alga 1000 mg/L 96 h	LC50: Fathead minnow >100mg/L 96h LC50: Oncorhychus 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.

	rmation	1170
ADR/RID	UN number	1170
	Class	3
	Proper Shipping Name	Ethanol
	Packing group	
	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
Internation	al Inventories EINECS/ELINCS TSCA	Listed Listed
Japanese r	egulations	
	-	ulation of Manufacture etc. of Chemical Substances
		(2)-202
	Regulated.	(z)-zuz
Industrial	Regulated. Safety and Health Act	(2)-202
Industrial	Safety and Health Act	
Industrial	Safety and Health Act Notifiable Substances (Law Art	t.57-2, Enforcement Oder Art.18-2 Attached Table No.9)No.61
Industrial	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances - Flam	t.57–2, Enforcement Oder Art.18–2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4)
	Safety and Health Act Notifiable Substances (Law Ard Dangerous Substances - Flam Harmful Substances Whose Na	t.57–2, Enforcement Oder Art.18–2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) imes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)
Poisonous	Safey and Health Act Notifiable Substances (Law Ard Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances C	t.57–2, Enforcement Oder Art.18–2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) imes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)
	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances Co ice Law	t.57–2, Enforcement Oder Art.18–2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) imes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated.
Poisonous Fire Servi	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances Co ice Law Category IV, alcohols, dangerou	t.57–2, Enforcement Oder Art.18–2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) imes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated. us grade 2 water–soluble
Poisonous Fire Servi	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances G ice Law Category IV, alcohols, dangerou ns for the carriage and storage of	t.57–2, Enforcement Oder Art.18–2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) umes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated. us grade 2 water-soluble of dangerous goods in ship
Poisonous Fire Servi	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances G ice Law Category IV, alcohols, dangerou ns for the carriage and storage of Flammable Liquids (Ordinance Art	t.57-2, Enforcement Oder Art.18-2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) umes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated. us grade 2 water-soluble of dangerous goods in ship rt.3, Ministry of Transportation Ordinance Regarding
Poisonous Fire Servi Regulatior	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances Cr ice Law Category IV, alcohols, dangerou ns for the carriage and storage of Flammable Liquids (Ordinance Ar Transport by Ship and Storage,	t.57-2, Enforcement Oder Art.18-2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) imes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated. us grade 2 water-soluble of dangerous goods in ship rt.3, Ministry of Transportation Ordinance Regarding Attached Table 1)
Poisonous Fire Servi Regulatior Japan PR	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances C ice Law Category IV, alcohols, dangerou ns for the carriage and storage of Flammable Liquids (Ordinance Ar Transport by Ship and Storage, TR	t.57-2, Enforcement Oder Art.18-2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) umes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated. us grade 2 water-soluble of dangerous goods in ship rt.3, Ministry of Transportation Ordinance Regarding
Poisonous Fire Servi Regulatior Japan PR	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances Co ice Law Category IV, alcohols, dangerou ns for the carriage and storage of Flammable Liquids (Ordinance Ar Transport by Ship and Storage, TR nautics law	t.57-2, Enforcement Oder Art.18-2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) imes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated. us grade 2 water-soluble of dangerous goods in ship rt.3, Ministry of Transportation Ordinance Regarding Attached Table 1) Not regulated.
Poisonous Fire Servi Regulatior Japan PR Civil Aero	Safety and Health Act Notifiable Substances (Law Art Dangerous Substances – Flam Harmful Substances Whose Na s and Deleterious Substances Co ice Law Category IV, alcohols, dangerou ns for the carriage and storage of Flammable Liquids (Ordinance Ar Transport by Ship and Storage, TR nautics law	t.57-2, Enforcement Oder Art.18-2 Attached Table No.9)No.61 mable Substance (Enforcement Order Attached Table 1 Item4) imes Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) ontrol Law Not regulated. us grade 2 water-soluble of dangerous goods in ship rt.3, Ministry of Transportation Ordinance Regarding Attached Table 1)

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

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

 $\label{eq:NITE_CHRIP} \end{tabular} NITE\ \end{tabular} CHRIP\ \end{tabular} (http://www.safe.nite.go.jp/japan/sougou/view/SystemTop_jp.faces)$

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