KKURABO

SAFETY DATA SHEET

QuickGene-AutoS DNA Tissue Kit (AS-DT)

Name of substance	Classification acc. to GHS	Pictograms
Proteinase K EDT-02	Skin Irrit. 1: H317	
	Resp. Sens. 1: H334	
Lysis Buffer LDT-S1	Acute Tox. 4: H302	
	Skin Irrit, 2: H315	
	Eye Irrit. 2: H319	
Tissue Lysis Buffer MDT-02	Skin Irrit. 2: H315	
	Eye Irrit. 2: H319	
	STOT SE 2: H371	
	Aquatic Acute 2: H401	\mathbf{v}
Wash Buffer WDT-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 CDT-S1		
Ethanol	Flam. Liq. 2: H225	
	Eye Irrit. 2B: H320	
	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	

KURABO INDUSTRIES LTD.

Bio-Medical Department

Address	Advanced Technology Center 2F	
	14-30 Shimokida-Cho, Neyagawa, Osaka 572-0823, Japan	
Telephone Number	+81-72-820-3079	
FAX Number	+81-72-820-3095	

Date of issue: 6/19/2019

atification of the substance /	of the company/undertaking
ntification of the substance/mixture and Product identifier:	of the company/undertaking
Product identifier. Product name:	Protease
Product code:	EDT-02
SDS NO:	EDT02_JPE_1.1
Details of the supplier of the safety da	
Manufacturer/Supplier:	KURABO INDUSTRIES LTD.
Address:	Advanced Technology Center, 14-30 Shimokida-cho, Neyagawa, Osaka, 572-0823 J/
Division:	Bio-Medical department
Telephone number:	+81-72-820-3079
FAX:	+81-72-820-3095
Relevant identified uses of the subst	ance or mixture and uses advised against
	ict: Reagents for automated nucleic acid isolation system
Uses advised against: For research u	-
ards identification	
GHS classification and label elements	-
Classification of the substance or mixtu	
HEALTH HAZARDS	Respiratory sensitization: Category 1
	Skin corrosion/irritation: Category 1
(Note) GHS classification	without description: Not applicable/Out of classification/Not classifiable
Label elements	
Signal word:	Danger
HAZARD STATEMENT	
H317 May cause an aller	gic skin reaction.
H334 May cause allergy	or asthma symptoms or breathing difficulties if inhaled.
PRECAUTIONARY STATI	
Prevention	
P280 Wear protective gl	oves.
P280 Wear eye protection	on/face protection.
P261 Avoid breathing du	ist/fume/gas/mist/vapours/spray.
P272 Contaminated work	k clothing should not be allowed out of the workplace.
P284 Wear respiratory p	rotection.
Response	
P302 + P352 IF ON SKIN:	: Wash with plenty of soap and water.
P312 Call a POISON CE	NTER or doctor/physician if you feel unwell.
P304 + P340 IF INHALED	Remove person to fresh air and keep comfortable for breathing.
P333 + P313 If skin irrita	ition or rash occurs: Get medical advice/attention.
P342 + P311 If experienc	ing respiratory symptoms: Call a POISON CENTER or doctor/physician.
•	ntaminated clothing and wash it before reuse.
Disposal	-
•	ts/container in accordance with local/national regulation.
nposition/information on ingredients	

Safety Data Sheet

Note : The figures shown above are not the specifications of the product.

Ingredient name

Proteinase K

Content(%)

>= 1 - < 10

CAS No.

39450-01-6

Descriptions of first-aid measur	es
IF INHALED	Remove person to fresh air and keep comfortable for breathing.
	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
IF ON SKIN(or hair)	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. Do not induce vomiting.
	Do not give milk or alcoholic drinks.
	If you are unconscious, never give anything by mouth.
	Call a POISON CENTER or doctor/physician if you feel unwell.
Most important symptoms and e	ffects, both acute and delayed

May cause allergy, asthma, or breathing difficulty if inhaled.

5. Fire-fighting measures	
Extinguishing media	
Suitable extinguishing media	Use appropriate extinguishing media suitable for surrounding facilities.
Unsuitable extinguishing media	water jet
Hazardous combustion products	Harmful combustion products are not known.
Protection of firefighters	Wear adequate personal protective equipment

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures	i
Ventilate area after material pick up is complete.	
Wear an air-supplied respirator for a poor/non ventilated spil	Ι.
Refer to the protective measures described in items 7 and	8.
Environmental precautions	
Keep away from drains surface and ground water	

Keep away from drains, surface and ground water.

Stop leak and spill after checking safety.

If the outflow is remarkable and can not be recovered, it must be reported to the local government.

Methods and materials for containment and cleaning up

Absorb with an inert absorbent (eg, sand, silica gel, acidic binder, universal binder, sawdust).

Place in an appropriate container, discard it, and leave it closed.

7. Handling and storage

Precauti	ons for safe handling
Prevent	ive measures
(Exposi	ure Control for handling personnel)
	Avoid breathing dust/fume.
Safety M	Measures/Incompatibility
	Use only outdoors or in a well-ventilated area.
	Smoking, eating and drinking are prohibited in the work area.
	Wear protective gloves.
	Wear eye protection/face protection.
Conditio	ons for safe storage, including any incompatibilities
Recom	mendation for storage
	Store in a well-ventilated place. Keep container tightly closed.
	Keep cool. Protect from sunlight.
	Storage temperature upper limit: 28°C
Contact	avoidance

Strong bases, strong oxidants, nitric acid, peroxides

8. Exposure controls/personal protection

Control p	arameters
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amotoro			
Ingredient name	CAS No.	Indicator (Exposure form)	Source
Proteinase K	39450-01-6	0.00006 mg/m3	Roche Industrial Hygiene Committee (RIHC)

Exposure controls Appropriate engineering controls General ventilation. Individual protection measures Respiratory protection In case of inadequate ventilation wear respiratory protection. Hand protection Wear protective gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Eye protection Wear safety glasses with side-shields or chemical safety goggle. Skin and body protection Wear protective clothing. Safety and Health measures Take off contaminated clothing and wash it before reuse. Wash hands thoroughly after handling.

9. Physical and Chemical Properties

Information on basic physical and che	emical properties	
Physical properties		
Appearance:	liquid	
Color:	colourless, clear	
Odor:	odourless	
рН	7.5	
density	1.126 g/cm3	
Solubility	·	
Solubility in water:	Completely soluble	
	Completely soluble	

10. Stability and Reactivity

Chemical stability	Stable under normal storage/handling conditions.	
Conditions to avoid	No data	
Incompatible materials	Strong base, Strong oxidizing agent, nitric acid, Peroxide	

11. Toxicological Information

Inform

mation on toxicological effects
No Acute toxicity data available
Skin corrosion/irritation
Shall not be classified as corrosive/irritant to skin.
Serious eye damage/eye irritation
Shall not be classified as seriously damaging to the eye or eye irritant.
Steam can irritate the eyes, the respiratory system and the skin.
Respiratory or skin sensitisation
May cause irritation / dermatitis on the skin.
May cause an allergic skin reaction.
Respiratory sensitisation
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ cell mutagenicity
Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.
Carcinogenicity
Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.
Reproductive toxicity
Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure Classification could not be established because: Data are lacking, inconclusive, or conclusive but not sufficient for classification. Specific target organ toxicity - repeated exposure Classification could not be established because: Data are lacking, inconclusive, or conclusive but not sufficient for classification. Aspiration hazard Classification could not be established because: Data are lacking, inconclusive, or conclusive but not sufficient for classification.

12. Ecological Information

Ecotoxicity	Data are not available.
Residuality / degradability	Data are not available.
Bioaccumulation	Data are not available.
Mobilityinsoil	It is not considered to adsorb to the soil
Hazard to the ozone layer	Not applicable
Otherhazardous effects	Data are not available.

13. Disposal considerations

Waste treatment methods

Residual waste

Do not contaminate ponds, waterways, or grooves with chemicals or used containers. We consign to an authorized waste disposal contractor. If you obey local regulations, it can be disposed of as wastewater. **Contaminated containers and packaging** Empty the remaining containere Dispose of in the same way as containers containing products. Empty containers shall be consigned to a licensed waste disposer for recycling or disposal. Do not reuse empty containers.

14. Transport Information

Marine transportation is regulated by IMDGCode. Air transportation is regulated by IATADangerousGoodsRegulations.

IMDG	
IATA	

Not regulated as dangerous goods. Not regulated as dangerous goods.

UN No, UN CLASS not subject to transport regulations

Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

15. Regulatory Information

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

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	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 Servi	ce 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 PR	TR	
	Specific Class 1 Designated Substance:	Not regulated.
	Class 1 Designated Substance:	Not regulated.
	Class 2 Designated Substance:	Not regulated.
Ship Safe	ty Law	Not regulated.
Civil Aero	nautics law	Not regulated.
Japan Ma	rine Pollution Prevention Law	
	Bulk transport	Hazardous liquid substances (Z class)
	Transport of goods	Not applicable to marine pollutants
High Pres	sure Gas Safety law	Not regulated.
Gun Powo	ler Control Law	Not regulated.

16. Other information

GHS classification and labelling

Skin Irrit. 1: H317 May cause an allergic skin reaction. Resp. Sens. 1: H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

General Disclaimer

Date of issue 6/19/2019

ntification of the substance/mixture and	of the company/undertaking
Product identifier:	
Product name:	Lysis Buffer
Product code:	LDT-S1
SDS NO:	LDTS1_JPE_1.1
Details of the supplier of the safety da	ta 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
Relevant identified uses of the substa	ance or mixture and uses advised against
Relevant identified uses of the produ	ct: Reagents for automated nucleic acid isolation system
Uses advised against: For research u	se only
ards identification	
GHS classification and label elements of	of the product
Classification of the substance or mixtu	re
HEALTH HAZARDS	Acute toxicity Oral: Category 4
	Skin corrosion/irritation: Category 2
	Serious eye damage/eye irritation: Category 2
(Note) GHS classification	without description: Not applicable/Out of classification/Not classifiable
Label elements	
Signal word:	Warning
HAZARD STATEMENT	
H302 Harmful if swallowed	4
H315 Causes skin irritatio	-
H319 Causes serious eye	
PRECAUTIONARY STATE	
Prevention	parts thoroughly atter handling
Prevention P264 Wash contaminated	parts thoroughly after handling.
Prevention P264 Wash contaminated P280 Wear protective glo	ves.
Prevention P264 Wash contaminated P280 Wear protective glo P280 Wear eye protectior	ves. n/face protection.
Prevention P264 Wash contaminated P280 Wear protective glo P280 Wear eye protectior P270 Do not eat, drink or	ves.
Prevention P264 Wash contaminated P280 Wear protective glov P280 Wear eye protectior P270 Do not eat, drink or Response	ves. n/face protection. smoke when using this product.
Prevention P264 Wash contaminated P280 Wear protective glov P280 Wear eye protection P270 Do not eat, drink or Response P302 + P352 IF ON SKIN:	ves. n/face protection. smoke when using this product. Wash with plenty of soap and water.
Prevention P264 Wash contaminated P280 Wear protective glov P280 Wear eye protectior P270 Do not eat, drink or Response P302 + P352 IF ON SKIN: P332 + P313 If skin irritat	ves. n/face protection. smoke when using this product. Wash with plenty of soap and water. ion occurs: Get medical advice/attention.
Prevention P264 Wash contaminated P280 Wear protective glov P280 Wear eye protection P270 Do not eat, drink or Response P302 + P352 IF ON SKIN: P332 + P313 If skin irritat P362 + P364 Take off cor	ves. n/face protection. smoke when using this product. Wash with plenty of soap and water. tion occurs: Get medical advice/attention. ntaminated clothing and wash it before reuse.
Prevention P264 Wash contaminated P280 Wear protective glo P280 Wear eye protection P270 Do not eat, drink or Response P302 + P352 IF ON SKIN: P332 + P313 If skin irritat P362 + P364 Take off cor P305 + P351 + P338 IF IN	ves. n/face protection. smoke when using this product. Wash with plenty of soap and water. tion occurs: Get medical advice/attention. ntaminated clothing and wash it before reuse. N EYES: Rinse cautiously with water for several minutes. Remove
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Prevention P264 Wash contaminated P280 Wear protective glov P280 Wear eye protection P270 Do not eat, drink or Response P302 + P352 IF ON SKIN: P332 + P313 If skin irritat P362 + P364 Take off cor P305 + P351 + P338 IF IN contact lenses, if present P337 + P313 If eye irritat	ves. n/face protection. smoke when using this product. Wash with plenty of soap and water. tion occurs: Get medical advice/attention. ntaminated clothing and wash it before reuse. N EYES: Rinse cautiously with water for several minutes. Remove
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Prevention P264 Wash contaminated P280 Wear protective glov P280 Wear eye protection P270 Do not eat, drink or Response P302 + P352 IF ON SKIN: P332 + P313 If skin irritat P362 + P364 Take off cor P305 + P351 + P338 IF IN contact lenses, if present P337 + P313 If eye irritat P330 Rinse mouth. P301 + P312 IF SWALLOV	ves. n/face protection. smoke when using this product. Wash with plenty of soap and water. tion occurs: Get medical advice/attention. ntaminated clothing and wash it before reuse. I EYES: Rinse cautiously with water for several minutes. Remove and easy to do. Continue rinsing.
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Prevention P264 Wash contaminated P280 Wear protective glov P280 Wear eye protection P270 Do not eat, drink or Response P302 + P352 IF ON SKIN: P332 + P313 If skin irritat P362 + P364 Take off cor P305 + P351 + P338 IF IN contact lenses, if present P337 + P313 If eye irritat P330 Rinse mouth. P301 + P312 IF SWALLOW	ves. n/face protection. smoke when using this product. Wash with plenty of soap and water. tion occurs: Get medical advice/attention. ntaminated clothing and wash it before reuse. N EYES: Rinse cautiously with water for several minutes. Remove and easy to do. Continue rinsing. ion persists: Get medical advice/attention. WED: Call a POISON CENTER or doctor/physician if you feel unwell.
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3. Composition/information on ingredients

Mixture/Substance selection

Mixture

Ingredient name	Content(%)	CAS No.
Guanidine hyrochloride	40-60	50-01-1
polyoxyethylene sorbitan fatty acid ester	10-20	-
hydrochloride salts of aminoalcohol	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

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.
Remove contaminated clothing. Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
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.
Rinse mouth.
Call a POISON CENTER or doctor/physician if you feel unwell.
Carbon dioxide, dry chemical and protein based foam.
None.
Keep personnel removed from and upwind of fire. Water runoff can damage the environment.

Procedu	ires
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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)

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

Environmental precautions

Prevent from entering into soil, waterways and ground water.

distance.

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.
	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

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: Colourless to light yellow, Clear Odor: Practically odourless pH: 6 Approx. Not flammable Flash point: Not flammable Auto-ignition temperature Solubility Completely soluble Solubility in 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 Harmful if swallowed. TestResults Acute OralLD50Rat:> 500mg/kg Skin corrosion/irritation strong Serious eyedamage/eye irritation moderately irritant Substances in group [1;2A;2B] by IARC(International Agencyfor Research onCancer):None Carcinogenicity 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 UN No, UN CLASS 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. ΙΑΤΑ 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.

Not regulated.

Class 3 Designated Chemical Substances:

	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	2	
	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 Harmful if swallowed Skin Irrit. 2: H315 Causes skin irritation Eye Irrit. 2: H319 Causes serious eye irritation

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:	Tissue Lysis Buffer
Product code:	MDT-02
SDS NO:	MDT02_JPE_1.1
Details of the supplier of the safety da	ta sheet
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 substa	ance or mixture and uses advised against
	ct: Reagents for automated nucleic acid isolation system
Relevant identified uses of the produ	
Relevant identified uses of the produ	
Relevant identified uses of the produ Uses advised against: For research u	se only
Relevant identified uses of the produ Uses advised against: For research u zards identification	se only of the product
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Relevant identified uses of the produ Uses advised against: For research u zards identification GHS classification and label elements of Classification of the substance or mixtur	se only of the product re Skin corrosion/irritation: Category 2
Relevant identified uses of the produ Uses advised against: For research u zards identification GHS classification and label elements of Classification of the substance or mixtur	se only of the product re Skin corrosion/irritation: Category 2 Serious eye damage/eye irritation: Category 2A
Relevant identified uses of the produ Uses advised against: For research u zards identification GHS classification and label elements of Classification of the substance or mixtur HEALTH HAZARDS	se only of the product re Skin corrosion/irritation: Category 2 Serious eye damage/eye irritation: Category 2A May cause damage to organs (central nervous system): Category 2
Relevant identified uses of the produ Uses advised against: For research u zards identification GHS classification and label elements of Classification of the substance or mixtur HEALTH HAZARDS	se only of the product re Skin corrosion/irritation: Category 2 Serious eye damage/eye irritation: Category 2A May cause damage to organs (central nervous system): Category 2 Toxic to aquatic life: Category 2

Safety Data Sheet

Signal word:

Warning

HAZARD STATEMENT

H315 Causes skin irritation.

H319 Causes serious eye irritation

H371 May cause damage to organs (central nervous system).

H401 Toxic to aquatic life

PRECAUTIONARY STATEMENT

Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

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 + P311 IF exposed or concerned: Call a POISON CENTER or doctor/physician

P332 + P313 If skin irritation occurs: Get medical advice/attention.

P337 + P313 If eye irritation persists: Get medical advice/attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage

P405 Store locked up.

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.
disodium ethylenediamine tetraacetate	1 - 5	139-33-3
sodium lauryl sulfate	1 - 5	151-21-3
Water	Balance	7732-18-5

Note : The figures shown above are not the specifications of the product.

4. First-aid measures

Descriptions of first-aid measures	
IF INHALED	Remove person to fresh air and keep comfortable for breathing.
	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physiciar
IF ON SKIN(or hair)	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. Do not induce vomiting.
	Do not give milk or alcoholic drinks.
	If you are unconscious, never give anything by mouth.
	Call a POISON CENTER or doctor/physician if you feel unwell.
Most important symptoms and effects,	both acute and delayed

May cause allergy, asthma, or breathing difficulty if inhaled.

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 equ	ipment and emergency procedures			
	Ventilate area after mat	erial pick up is complete.			
	Wear an air-supplied respirator for a poor/non ventilated spill.				
	Refer to the protective measures described in items 7 and 8.				
Environme	ntal precautions				
	Prevent from entering into soil, waterways and ground water.				
	Stop leak and spill after checking safety.				
Methods a	nd materials for containmer	nt and cleaning up			
	Absorb with an inert abso	orbent (eg, sand, silica gel, acidic binder, universal binder, sawdust).			
	Place in an appropriate container, discard it, and leave it closed.				
7. Handling and st	orage				
Precaution	s for safe handling				
Handling	Technicalmeasures	Avoid contact with skin, eyes and clothing. Wash hands after handling.			
	Local and general	Use only with adequate ventilation.			
	ventilation				
	Precautions	See Section 8 (Exposure Controls/Personal Protection).			
	Safehandling advice	See Section 10 (Stability and reactivity).			

8. Exposure	controls/personal protection

Suitable storage conditions

Safe packaging materials

Engineering measures

Storage

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

Protect from sunlight. Keep container tightly closed.

Use plastic container that have enough toughness.

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.	
ysical and Chemical Properties		
Information on basic physical and chemic	al properties	
Physical properties		
Appearance:	liquid	
Color:	colourless, clear	
Odor:	odourless	
рН	8.4 Approx.	
Solubility		
Solubility in water:	Completely soluble	
tability 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).	
oxicological Information		
Acute toxicity		
TestResults	Acute Oral LD50 Rat: > 2000 mg/kg	
Skin corrosion/irritation	strong	
Serious eyedamage/eye irritation	weakly irritant	
Carcinogenicity	Substances in group [1;2A;2B] by IARC (International Agency for Research on Cancer):None	
cological Information		
Bioaccumulation	Not established.	
Mobilityinsoil	Not established.	
Otherhazardous effects	Not established	
isposal considerations		
	nt is not available, collect entire waste and then charge to a licensed industrial waste	
	or industrial waste. Follow the laws and regulations in your country while disposing of	

Not applicable t	to UN NO.
DG Code. Air transpo	rtation is regulated by IATA Dangerous Goods Regulations.
Not regulated as dangerous goods. Not regulated as dangerous goods.	
egulation of Manufac	cture etc. of Chemical Substances
Substance:	Not regulated.
Substance:	Not regulated.
al Substance:	Not regulated.
al Substance:	Not regulated.
al Substance:	Not regulated.
mmable:	Not regulated.
mmable Gases:	Not regulated.
dizing:	Not regulated.
olosives:	Not regulated.
	DG Code. Air transpo Not regulated a Not regulated a

3 / 4 Page

Not regulated.

Dangerous Substances Ignitable:

Haumful Substances Cousinesses	Net 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	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 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	
Bulk transport	Hazardous liquid substances (Z class)
Transport of goods	Not applicable to marine pollutants
High Pressure Gas Safety law	Not regulated.
Gun Powder Control Law	Not regulated.

16. Other information

GHS classification and labelling

Skin Irrit. 2: H315 Causes skin irritation.

Eye Irrit. 2: H319 Causes serious eye irritation

STOT SE 2: H371 May cause damage to organs (central nervous system).

Aquatic Acute 2: H401 Toxic to aquatic life

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

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

General Disclaimer

Date of issue 6/19/2019

tification of the substance/mixture and of Product identifier:	
Product name:	Wash Buffer
Product code:	WDT-S1
SDS NO:	WDTS1_JPE_1.1
Details of the supplier of the safety data	
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 substan	ice or mixture and uses advised against
Relevant identified uses of the product	t: Reagents for automated nucleic acid isolation system
Uses advised against: For research use	e only
ards 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)
	Gategory (liver)
Label elements	Category 2(Central nervous system)
Label elements Signal word:	Category 2(Central nervous system)
Signal word:	
Signal word: HAZARD STATEMENT	Danger
Signal word: HAZARD STATEMENT H226 Flammable liquid and	vapour
Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye ir	Vapour ritation
Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye ir H335 May cause respiratory	vapour ritation y irritation
Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye ir H335 May cause respiratory H336 May cause drowsines	vapour ritation y irritation
Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye ir H335 May cause respiratory	vapour ritation y irritation s or dizziness
Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye ir H335 May cause respirator H336 May cause drowsines H350 May cause cancer H360 May damage fertility of	vapour ritation y irritation s or dizziness
Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye ir H335 May cause respiratory H336 May cause drowsines H350 May cause drowsines H350 May cause cancer H360 May damage fertility of H372 Causes damage to c	vapour ritation y irritation s or dizziness or the unborn child argans through prolonged or repeated exposure
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Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye in H335 May cause respiratory H336 May cause drowsines H350 May cause cancer H360 May damage fertility of H372 Causes damage to of H373 May cause damage to H373 May cause damage to H374 Distain special instructory P201 Obtain special instructory P202 Do not handle until al P210 Keep away from heat,	Vapour ritation y irritation s or dizziness bor the unborn child regans through prolonged or repeated exposure to organs through prolonged or repeated exposure to organs through prolonged or repeated exposure to organs through prolonged or repeated exposure to a space of the unborn child regans through prolonged or repeated exposure to a space of the unborn child result of the unborn child regans through prolonged or repeated exposure to a space of the unborn child result of the unborn
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Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye in H335 May cause respiratory H336 May cause drowsines H350 May cause drowsines H350 May cause cancer H360 May damage fertility of H372 Causes damage to H373 May cause damage to PRECAUTIONARY STATEM Prevention P201 Obtain special instruct P202 Do not handle until al P210 Keep away from heat, P233 Keep container tightly P240 Ground/bond contain P241 Use explosion-proof of P242 Use only non-sparkin, P243 Take precautionary m P260 Do not breathe dust/ P261 Avoid breathing dust/	vapour ritation y irritation y irritation s or dizziness or the unborn child regans through prolonged or repeated exposure to organs through prolonged or repeated exposure to organs through prolonged or repeated exposure MENT the suffere use. I safety precautions have been read and understood. I safety precautions have been read and u
Signal word: HAZARD STATEMENT H226 Flammable liquid and H319 Causes serious eye in H335 May cause respiratory H336 May cause drowsines H350 May cause drowsines H350 May cause cancer H360 May damage fertility of H372 Causes damage to H373 May cause damage to H374 Causes damage to H375 Causes damage to H376 May cause damage to H378 Causes damage to H378 Keep container tightly P240 Ground/bond contain P241 Use explosion-proof of P242 Use only non-sparkin P243 Take precautionary m P260 Do not breathe dust/ P261 Avoid breathing dust/ P264 Wash contaminated p	vapour ritation y irritation y irritation s or dizziness or the unborn child regans through prolonged or repeated exposure to organs through prolonged or repeated exposure to organs through prolonged or repeated exposure to organs through prolonged or repeated exposure MENT thins before use. I safety precautions have been read and understood. I safety precautions have been read and und

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	40 - 50	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.

I. 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 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	landling and storage			
Precaution	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).		
	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

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				
Liquid				
Colourless, Clear				
Alcohol odor				
7.6				
24.5°C				
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 on the NITE GHS classification 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	Based on the NITE GHS classification results.		
TOT-repeated exposure				
Chemical Name	STOT -repeated exposure- source information			
Ethanol	Based on the NITE GHS classification results.			
spiration hazard				
Chemical Name	Aspi	ration Hazard source inform	nation	
Ethanol	Based o	n the NITE GHS classificatio	on 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: Oncorhychus mykiss	EC50: Daphnia magna 5463 mg/L 48 h	
		=11200ppm 96h	5	
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		

International Inventories		
EINECS/ELINCS	Listed	
TSCA	Listed	
Japanese regulations		
Law concerning the Examination and	Regulation of Manufa	cture 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 In	dicated 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	ds 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	rtification 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. 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

Date of issue 6/19/2019

Product identifier:	of the company/undertal	-		
Product Identifier. Product name:	Elution Buffer			
Product code:	CDT-S1			
SDS NO:	CDTS1_JPE_1.1			
Details of the supplier of the safety dat				
Manufacturer/Supplier:	KURABO INDUSTRIE	SITD		
Address:			okida-cho, Neyagawa, O	saka. 572-0823 JA
Division:	Bio-Medical departm			
Telephone number:	+81-72-820-3079			
FAX:	+81-72-820-3095			
Relevant identified uses of the substa	ance or mixture and uses	advised against		
Relevant identified uses of the produ	ct: Reagents for automat	ed nucleic acid isolat	ion system	
Uses advised against: For research us	se only			
zards identification				
GHS classification and label elements o	of the product			
Classification of the substance or mixtur	re			
Not applicable to GHS classi	fication			
Label elements				
No hazard pictogram				
No Signal word				
mposition/information on ingredients Mixture/Substance selection	M ¹ to an			
Mixture/ Substance selection	Mixture			
Ingredie	nt name	Content(%)	CAS No.	
Water		80-100	7732-18-5	
Note : The figures shown	above are not the specifica	tions of the product.		
Note : The figures shown	above are not the specifica I substances greater than 1	tions of the product.]
Note : The figures shown	-	tions of the product.		
Note : The figures shown Generally chemica	I substances greater than 1	tions of the product. % of the total are listed		table for situation.
Note : The figures shown Generally chemica st-aid measures	l substances greater than 1 Rescuers should we	tions of the product. % of the total are listed ar proper personal pr	l.	table for situation.
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures	l substances greater than 1 Rescuers should we Remove person to fi	tions of the product. % of the total are listed ar proper personal pr resh air and keep con	otective equipment sui	table for situation.
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures	l substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic	otective equipment sui nfortable for breathing.	
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED	I substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w	
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED	Rescuers should we Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advice	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w	vater.
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair)	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously wit	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advice	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac	vater.
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair)	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy t	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advic h water for several m	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac g.	vater.
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair)	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy t	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physid ed clothing. Wash with urs: Get medical advid h water for several m to do. Continue rinsin	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac g.	vater.
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair) IF IN EYES	I substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy t If eye irritation persi Rinse mouth.	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advic h water for several m to do. Continue rinsin sts: Get medical advi	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac g.	vater.
Note : The figures shown Generally chemica st-aid measures Descriptions of first-aid measures IF INHALED IF ON SKIN(or hair) IF IN EYES	I substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy t If eye irritation persi Rinse mouth.	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advic h water for several m to do. Continue rinsin sts: Get medical advi	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac g. ce/attention.	vater.
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	I substances greater than 1 Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy t If eye irritation persi Rinse mouth.	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advic h water for several m to do. Continue rinsin sts: Get medical advi	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac g. ce/attention.	vater.
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	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy to If eye irritation persi Rinse mouth. Call a POISON CEN	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advic h water for several m to do. Continue rinsin sts: Get medical advi	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac ig. ce/attention. cian if you feel unwell.	vater.
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	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy to If eye irritation persi Rinse mouth. Call a POISON CEN	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advic h water for several m to do. Continue rinsin sts: Get medical advi TER or doctor/physic	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac ig. ce/attention. cian if you feel unwell.	vater.
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	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy to If eye irritation persi Rinse mouth. Call a POISON CEN Carbon dioxide, dry of None. Keep personnel remo	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advic h water for several m to do. Continue rinsin sts: Get medical advi TER or doctor/physic chemical and protein	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac ig. ce/attention. cian if you feel unwell.	vater. st lenses,
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	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy th If eye irritation persi Rinse mouth. Call a POISON CEN Carbon dioxide, dry of None. Keep personnel remo the environment.	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advid h water for several m to do. Continue rinsin sts: Get medical advid TER or doctor/physic chemical and protein oved from and upwing	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac g. ice/attention. cian if you feel unwell. based foam. d of fire. Water runoff c	vater. st lenses,
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	Rescuers should we Remove person to fr Call a POISON CEN Remove contaminate If skin irritation occu Rinse cautiously with if present and easy th If eye irritation persi Rinse mouth. Call a POISON CEN Carbon dioxide, dry of None. Keep personnel remo the environment.	tions of the product. % of the total are listed ar proper personal pr resh air and keep con TER or doctor/physic ed clothing. Wash wit urs: Get medical advid h water for several m to do. Continue rinsin sts: Get medical advid TER or doctor/physic chemical and protein oved from and upwing	otective equipment sui nfortable for breathing. cian if you feel unwell. th plenty of soap and w ce/attention. inutes. Remove contac g. ce/attention. cian if you feel unwell.	vater. st 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 chemical properties				
Physical pro	perties			
	Appearance:	Liquid		
	Color:	Colourless, Clear		
	Odor:	Odourless		
	pH:	9		
	Flash point:	Not flammable		
	Auto-ignition temperature	Not flammable		
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 e	effects

Not established. Not established. Not established

	stewater treatment plant is not available, o	collect entire waste and then charge to a licensed industrial waste Follow the laws and regulations in your country while disposing of thi
Fransport Information		
UN N	o, UN CLASS Not applicable	to UN NO.
Marine transportati	on is regulated by IMDG Code. Air transpo	ortation is regulated by IATA Dangerous Goods Regulations.
IMDG	Not regulated a	as dangerous goods.
ΙΑΤΑ	Not regulated a	as dangerous goods.
Regulatory Informatior		
	e Examination and Regulation of Manufac	sture etc. of Chemical Substances
Class	1 Specified Chemical Substance:	Not regulated.
Class	2 Specified Chemical Substance:	Not regulated.
Туре	1 Monitoring Chemical Substance:	Not regulated.
Туре	2 Monitoring Chemical Substance:	Not regulated.
Туре	3 Monitoring Chemical Substance:	Not regulated.
Industrial Safety a	nd Health Law	
Dang	erous Substances Flammable:	Not regulated.
Dang	erous Substances Flammable Gases:	Not regulated.
Dang	erous Substances Oxidizing:	Not regulated.
Dang	erous Substances Explosives:	Not regulated.
Dang	erous Substances Ignitable:	Not regulated.
Harm	ful 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.
Notifi	able Substance:	Not regulated.
Label	ing Requirements:	Not regulated.
Other	rs:	Not regulated.
Poisonous and Del	eterious Substances Control Law	
Spec	fied Poisonous Substance – Main Law:	Not regulated.
Spec	fied Poisonous Substance – Cabinet Orde	r: Not regulated.
	nous Substances – Main Law:	Not regulated.
Poiso	nous Substances – Cabinet Order:	Not regulated.
Delet	erious Substances – Main Law:	Not regulated.
Delet	erious Substances – Cabinet Order:	Not regulated.
Enfor	cement Order Article 32-2:	Not regulated.
Enfor	cement Order Article 32–3:	Not regulated.
	onsidered Poisonous:	Not regulated.
Not C	Considered Deleterious:	Not regulated.
Cabir	et Order, Preparations:	Not regulated.
Fire Service Law		
	1 Oxidizing Solids:	Not regulated.
Class	2 Flammable Solids:	Not regulated.
Class	3 Spontaneous combustibility and	Not regulated.
	r-reactivity Substances:	Not regulated.
	4 Flammable Liquids:	Not regulated.
Class	5 Self-Reactive Substances:	Not regulated.
Class	6 Oxidizing Liquids:	Not regulated.
Desig	nated Flammable Substances:	Not regulated.
Stora	ge Reporting Substance:	Not regulated.
Japan PRTR		
Spec	fic Class 1 Designated Substance:	Not regulated.
Class	1 Designated Substance:	Not regulated.
Class	2 Designated Substance:	Not regulated.

Ship Safety Law
Civil Aeronautics law
Japan Marine Pollution Prevention Law
High Pressure Gas Safety law
Gun Powder Control Law

Not regulated. Not regulated. Not regulated. Not regulated. 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

	ure 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 s Manufacturer/Supplier:	KURABO INDUSTRIES LTD.
Address:	Advanced Technology Center, 14–30 Shimokida-cho, Neyagawa, Osaka, 572–0823 JAF
Division:	Bio-Medical department
Telephone num	
FAX:	+81-72-820-3095
	e substance or mixture and uses advised against
	e product: Reagents for automated nucleic acid isolation system
Uses advised against: For re	
	-
lazards identification	
GHS classification and label el	•
Classification of the substance	
PHYSICAL HAZA	
HEALTH HAZARI	
	Carcinogenicity: Category 1A
	Reproductive toxicity: Category 1A Specific toward over a sustemictoricity – single averaging
	Specific target organ systemictoxicity – single exposure: Category 3(respiratory tract irritation)
	Category 3(Narcotic effect) Specific target organ systemictoxicity - Repeated exposure
	Category 1(liver)
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: HAZARD STATE	Category 2(Central nervous system)
Signal word: HAZARD STATE	Category 2(Central nervous system)
Signal word: HAZARD STATEI H225 Highly flam	Category 2(Central nervous system) Category 2(Central nervous system) Danger Danger MENT mable liquid and vapor printation
Signal word: HAZARD STATE H225 Highly flam H320 Causes eye H350 May cause	Category 2(Central nervous system) Category 2(Central nervous system) Danger Danger MENT mable liquid and vapor printation
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag	Category 2(Central nervous system) Category 2(Central nervous system) Danger Danger MENT mable liquid and vapor s irritation cancer
Signal word: HAZARD STATEL H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause	Category 2(Central nervous system) Category 2(Central nervous system) Danger Danger MENT mable liquid and vapor i irritation cancer e fertility or the unborn child
Signal word: HAZARD STATE H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause	Category 2(Central nervous system) Category 2(Central nervous system) Danger Danger MENT mable liquid and vapor i rritation cancer e fertility or the unborn child respiratory irritation
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H336 May cause H372 Causes da	Category 2(Central nervous system)
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H336 May cause H372 Causes da	Category 2(Central nervous system)
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H336 May cause H372 Causes da H373 May cause	Category 2(Central nervous system)
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H376 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention	Category 2(Central nervous system)
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention P201 Obtain spec	Category 2(Central nervous system) Were a constructed of the construc
Signal word: HAZARD STATE H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention P201 Obtain sper P202 Do not han	Category 2(Central nervous system) The system of the syst
Signal word: HAZARD STATE H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention P201 Obtain spec P202 Do not han P210 Keep away	Category 2(Central nervous system) Image Danger MENT mable liquid and vapor irritation cancer e fertility or the unborn child respiratory irritation drowsiness or dizziness mage to organs through prolonged or repeated exposure dramage to organs through prolonged or repeated exposure transport transport transport transport transport transport transport drowsiness or dizziness mage to organs through prolonged or repeated exposure dramage to organs through prolonged or repeated exposure transport transport teil instructions before use. teil until all safety precautions have been read and understood.
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H372 Causes da H373 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention P201 Obtain spec P202 Do not han P210 Keep away P233 Keep conta	Category 2(Central nervous system) The control of the control of
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Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention P201 Obtain spec P202 Do not han P210 Keep away P233 Keep conta P240 Ground/bo P241 Use explos P242 Use only no P243 Take preca	Category 2(Central nervous system) We consider the system of the system
Signal word: HAZARD STATEI H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention P201 Obtain sper P202 Do not han P210 Keep away P233 Keep conta P240 Ground/bo P241 Use explos P242 Use only no P243 Take preca P260 Do not brea	Category 2(Central nervous system) WENT mable liquid and vapor mable liquid and vapor miritation cancer a fertility or the unborn child respiratory irritation drowsiness or dizziness mage to organs through prolonged or repeated exposure damage to organs through prolonged or repeated exposure damage to organs through prolonged or repeated exposure damage to organs through prolonged or repeated exposure that is instructions before use. dial instruct
Signal word: HAZARD STATE H225 Highly flam H320 Causes eye H350 May cause H360 May damag H335 May cause H336 May cause H372 Causes da H373 May cause PRECAUTIONAR Prevention P201 Obtain sper P202 Do not han P210 Keep away P233 Keep conta P240 Ground/bo P241 Use explos P242 Use only no P243 Take preca P260 Do not brea	Category 2(Central nervous system) We consider the system of the system

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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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 che	emical 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.

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	s 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	otective 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.		

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 prop	perties	
	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: Lower:	19.0 vol% 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 monooxide (CO), Carbon dioxide (CO2)

11. Toxicological Information

Acute toxici	ty			
	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 – 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	ormation	
Ethanol	Based on	the NITE GHS classification	on results.	
erious eyedamage/eye irritation				
Chemical Name	Seriou	s eye damage source info	mation	
Ethanol	Based on	the NITE GHS classification	on results.	
espiratory or skin sensitization				
Chemical Name	Respiratory	, Skin sensitization source	information	
Ethanol	Based on	the NITE GHS classification	on results.	
eproductive cell mutagenicity				
Chemical Name	м	utagenic source informati	on	
Ethanol	Based on	the NITE GHS classification	on results.	
arcinogenicity				
Chemical Name	Carc	inogenicity 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	Reprod	uctive toxicity source info	rmation	
Ethanol	Based on	the NITE GHS classification	on results.	
TOT-single exposure				
Chemical Name	STOT –s	ingle exposure- source in	formation	
Ethanol	Based on	the NITE GHS classification	on results.	
STOT-repeated exposure				
Chemical Name	STOT -rep	peated exposure- source i	information	
Ethanol	Based on	the NITE GHS classification	on results.	
Aspiration hazard				
Chemical Name	Aspira	ation Hazard source inforr	nation	
Ethanol	Based on	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	3
	Class Dran an Shinning Name	
	Proper Shipping Name	Ethanol
	Packing group	II Nat and liable
	Marine pollutant	Not applicable
IMDG	UN number	1170 3
	Class	
	Proper Shipping Name	Ethanol
	Packing group	
	Marine pollutant	Not applicable
	MARPOL 73/78 Annex II and liquid substances to be bulk loaded by IBC code	No information available
ΙΑΤΑ	UN number	1170
	Class	3
	Proper Shipping Name	Ethanol solution
	Packing group	Ш
	Environmentally Hazardous Substance	Not applicable
gulatory Info	prmation	
Internation	al Inventories	
	EINECS/ELINCS	Listed
	TSCA	Listed
	1564	Listeu
Japanese r		
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-	egulations	
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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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