	Created Date: 04/13/2005		
Section 1 - Product and Company Information			
Product name	Insect Cell Extract		
Company name	Shimadzu Corporation		
Department	Life Science Laboratory		
Address	1, Nishinokyo Kuwabaracho, Nakagyo <del>k</del> u, Kyoto 604 <del>8</del> 511 Japan		
Technical phone	+ 81 -75 -823 -1351		
Fax	+ 81 -75 -823 -1364		
Reference number	TDIC MSDS -1		
Section 2 - Composition/Information on Ingredi			
Identification of substance			
Components and concentration	Water >85%, Glycerol 5%, HEPES 1%, Potassium acetate 1%, etc.		
Section 3 - Hazards Identification			
Emergency overview	Caution: Avoid contact and inhalation.		
For additional information on toxicity, please	refer to section 11.		
Section 4 - First Aid Measures			
Oral exposure			
If swallowed, wash out mouth with w	ater provided person is conscious. Call a physician.		
Inhalation exposure			
If inhaled, blow the nose, and garg	le, then remove to fresh air, and rest. Call a physician.		
Dermal exposure			
In case of contact, immediately wash	skin with copious amounts of water. If clothes are contaminated, remove them. Call a physician.		
Eye exposure			
In case of contact, immediately flu	ush eyes with copious amounts of water for at least 15 minutes. Call a physician.		
Oraction 5 - First Sichting Narrung			
Section 5 - Fire Fighting Measures			
Flash point	N/A		
Autoignition temp	N/A		
Flammability	N/A		
Extinguishing media	Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.		
Firefighting			
In the case of surrounding fire, mov	the container to a safety space. If the container cannot be moved, cool the surroundings with		
water.			
Section 6 - Accidental Release Measures			
Procedure(s) of personal procedure(s)			
Weer protective equipment			
Wethede for electing up			
methods for cleaning up	and the second mark the second data with makes		
Recover as much as possible into an	i empty container, and wash the remainder with water.		
Section 7 - Handling and Storage			
Handling Make sure that it does not contact	the eyes or skin.		
Storage Store at - 80 .			
Section 8 - Exposure Controls/Personal Protect	Ive Equipment		
Engineering controls	Provide equipment for washing eyes.		
Personal protective equipment	Wear chemical resistant gloves, safety goggles, and protective clothing.		
General hygiene measures	Wash thoroughly after handling.		

Section 9 - Physical/Chemical Prop	erties			
Appearance	Color: Colorless	Color: Colorless		
	Form: Liquid			
Property	Value	At temperature or pressure		
Molecular weight	N/A			
PH	N/A			
BP/BP range	N/A			
MP/MP range	N/A			
Freezing point	N/A			
Vapor Pressure	N/A			
Vapor Density	N/A			
Saturated vapor conc.	N/A			
SG/density	N/A			
Bulk density	N/A			
Odor threshold	N/A			
Volatile%	N/A			
VOC content	N/A			
Water content	N/A			
Solvent content	N/A			
Evaporation rate	N/A			
Viscosity	N/A			
Surface tension	N/A			
Partition coefficient	N/A			
Decomposition temp.	N/A			
Flash point	N/A			
Explosion limits	N/A			
Flammability	N/A			
Autoignition temp	N/A			
Refractive index	N/A			
Optical rotation	N/A			
Miscellaneous data	N/A			
Solubility	N/A			
-				

N/A = not available

Section 10	)	-	Stability	and	Reactivity

Stability	
Stable: Stable.	
Hazardous decomposition products	
Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.	
Hazardous polymerization	
Hazardous polymerization: Will not occur.	

# Section 11 - Toxicological Information

### Route of exposure

Skin contact: May cause skin irritation.

Skin absorption: May be harmful if absorbed through the skin.

Eye contact: May causes eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed.

Sensitization

Sensitization: Will not occur.

Additional toxicological information

To our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

# Section 12 - Ecological Information

No data available

#### Section 13 - Disposal Considerations

Appropriate method of disposal of substance or preparation After autoclaving, dispose together with excess water.

### Section 14 - Transport Information

Transport precautions

Prevent damage to the container due to falling over or being dropped.

# Section 15 - Regulatory Information

Applicable laws and regulations

Fire Protection Law: Type 4 dangerous substance, type 3 petroleum product (Glycerol)

#### Section 16 - Other Information

References

Sigma Aldrich Material Safety Data Sheets, Merck Material Safety Data Sheets, etc.

Please inform operators of the contents of this data sheet, by providing it in the work place.

- The hazard and toxicity evaluation has not necessarily been sufficient, so handle with sufficient care.
- The values for concentration and physical and chemical properties are not guaranteed.
- The cautions and other information apply to normal handling only.

#### Department issuing MSDS

Life Science Laboratory, Shimadzu Corporation

Created Date: 04/13/2005

# MATERIAL SAFETY DATA SHEET

Section 1 - Product and Company Infor	mation
Product name	Reaction Buffer
Company name	Shimadzu Corporation
Department	Life Science Laboratory
Address	1, Nishinokyo Kuwabaracho, Nakagyo ku, Kyoto 604 8511 Japan
Technical phone	+ 81 -75 -823 -1351
Fax	+ 81 75 823 -1364
Reference number	TDIC MSDS 2
Section 2 - Composition/Information o	n Ingredient
Identification of substance	Mixture
Components and concentration	Water >90%, Potassium acetate 1.6%, HEPES 1.2%, etc.
Section 3 - Hazards Identification	
Emergency overview	Caution: Avoid contact and inhalation.
For additional information on toxicity	, please refer to section 11.
Section 4 - First Aid Measures	
Oral exposure	
If swallowed, wash out mou	th with water provided person is conscious. Call a physician.
Inhalation exposure	
If inhaled, blow the nose,	and gargle, then remove to fresh air, and rest. Call a physician.
Dermal exposure	
In case of contact, immedia	tely wash skin with copious amounts of water. If clothes are contaminated, remove them. Call a physician.
Eye exposure	
In case of contact, immedi	ately flush eyes with copious amounts of water for at least 15 minutes. Call a physician.
Section 5 - Fire Fighting Measures	
Flash point	N/A
Autoignition temp	N/A
Flammability	N/A
Extinguishing media	Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.
Firefighting	
In the case of surrounding water.	fire, move the container to a safety space. If the container cannot be moved, cool the surroundings with
Section 6 - Accidental Release Measur	es
$\label{eq:procedure} Procedure(s) \mbox{ of personal precaution}(s)$	
Wear protective equipment.	
Methods for cleaning up	
Recover as much as possibl	e into an empty container, and wash the remainder with water.
Section 7 - Handling and Storage	
Handling Make sure that it does not	contact the eyes or skin.
Storage Store at - 80 .	
Section 8 - Exposure Controls/Persona	I Protective Equipment
Engineering controls	Provide equipment for washing eyes.

Engineering control Personal protective equipment General hygiene measures

Section 1 -

Wear chemical -resistant gloves, safety goggles, and protective clothing. Wash thoroughly after handling.

Section 9 – Physical/Chemical Properties		
Appearance	Color: Colorless	
	Form: Liquid	
Property	Value	At temperature or pressure
Molecular weight	N/A	
PH	N/A	
BP/BP range	N/A	
MP/MP range	N/A	
Freezing point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated vapor conc.	N/A	
SG/density	N/A	
Bulk density	N/A	
Odor threshold	N/A	
Volatile%	N/A	
VOC content	N/A	
Water content	N/A	
Solvent content	N/A	
Evaporation rate	N/A	
Viscosity	N/A	
Surface tension	N/A	
Partition coefficient	N/A	
Decomposition temp.	N/A	
Flash point	N/A	
Explosion limits	N/A	
Flammability	N/A	
Autoignition temp	N/A	
Refractive index	N/A	
Optical rotation	N/A	
Miscellaneous data	N/A	
Solubility	N/A	

N/A = not available

Section 10 -	Stability and Reactivity
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Stability	
S	Stable: Stable.
Hazardous dec	composition products
ŀ	Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.
Hazardous pol	lymerization
ŀ	Hazardous polymerization: Will not occur.

# Section 11 - Toxicological Information

## Route of exposure

Skin contact: May cause skin irritation.

Skin absorption: May be harmful if absorbed through the skin.

Eye contact: May causes eye irritation.

Ingestion: May be harmful if swallowed.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

#### Sensitization

Sensitization: Will not occur.

Additional toxicological information

To our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12 -	Ecological Information
No data availa	able
Section 13 -	Disposal Considerations

Appropriate method of disposal of substance or preparation After autoclaving, dispose together with excess water.

Section 14 - Transport Information

Transport precautions

Prevent damage to the container due to falling over or being dropped.

Section 15	-	Regulatory	Information
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Applicable laws and regulations

None

### Section 16 - Other Information

References

Sigma Aldrich Material Safety Data Sheets, Merck Material Safety Data Sheets, etc.

Please inform operators of the contents of this data sheet, by providing it in the work place.

- The hazard and toxicity evaluation has not necessarily been sufficient, so handle with sufficient care.
- · The values for concentration and physical and chemical properties are not guaranteed.
- The cautions and other information apply to normal handling only.

Department issuing MSDS

Life Science Laboratory, Shimadzu Corporation

	Created Date: 04/13/2005		
Section 1 - Product and Company Informa	tion		
Product name	4mM Methionine		
Company name	Shimadzu Corporation		
Department	Life Science Laboratory		
Address	1, Nishinokyo Kuwabaracho, Nakagyo ku, Kyoto 604–8511 Japan		
Technical phone	+ 81 -75 -823 -1351		
Fax	+ 81 -75 -823 -1364		
Reference number	TDIC HISDS 3		
Section 2 - Composition/Information on	Ingredient		
Identification of substance	Mixture		
Components and concentration	Water 99.4%, L-Methionine 0.06%		
Section 3 - Hazards Identification			
Emergency overview	Caution: Avoid contact and inhalation.		
For additional information on toxicity,	please refer to section 11.		
Section 4 - First Aid Measures			
Oral exposure			
If swallowed, wash out mouth	with water provided person is conscious. Call a physician.		
Inhalation exposure			
If inhaled blow the pose a	nd gargle, then remove to fresh air, and rest Call a physician		
Dermel expective	iu gargie, then remove to riesh arr, and rest. Carr a physician.		
bermar exposure	la mark altis with analysis seconds of waters. If also an another instead, some them. All such within		
In case of contact, immediate	IV wash skin with copious amounts of water. If clothes are contaminated, remove them. Call a physician.		
Eye exposure			
In case of contact, immediat	ely flush eyes with copious amounts of water for at least 15 minutes. Call a physician.		
Section 5 - Fire Fighting Measures			
Flash point			
Flash point	N/A		
Autoignition temp	N/A		
Flammability	N/A		
Extinguishing media	Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.		
Firefighting			
In the case of surrounding fi	re, move the container to a safety space. If the container cannot be moved, cool the surroundings with		
water.			
Section 6 - Accidental Release Measures			
Procedure(s) of personal precaution(s)			
Wear protective equipment.			
Methods for cleaning up			
Recover as much as possible	into an empty container, and wash the remainder with water.		
Section 7 - Handling and Storage			
Handling Make sure that it does not c	ontact the eyes or skin.		
Storage Store at - 20 .			
Section 8 - Exposure Controls/Personal	Protective Equipment		
Engineering controls	Provide equipment for washing eyes.		
Personal protective equipment	Wear chemical -resistant gloves, safety goggles, and protective clothing.		
General hygiene measures	Wash thoroughly after handling.		
	<i>。</i> , <i>。</i>		

Section 9 - Physical/Chemical Prop	perties				
Appearance	Color: Colorless	Color: Colorless			
	Form: Liquid				
Property	Value	At temperature or pressure			
Molecular weight	N/A				
PH	N/A				
BP/BP range	N/A				
MP/MP range	N/A				
Freezing point	N/A				
Vapor Pressure	N/A				
Vapor Density	N/A				
Saturated vapor conc.	N/A				
SG/density	N/A				
Bulk density	N/A				
Odor threshold	N/A				
Volatile%	N/A				
VOC content	N/A				
Water content	N/A				
Solvent content	N/A				
Evaporation rate	N/A				
Viscosity	N/A				
Surface tension	N/A				
Partition coefficient	N/A				
Decomposition temp.	N/A				
Flash point	N/A				
Explosion limits	N/A				
Flammability	N/A				
Autoignition temp	N/A				
Refractive index	N/A				
Optical rotation	N/A				
Miscellaneous data	N/A				
Solubility	N/A				
-					

N/A = not available

Section 10	)	-	Stability	and	Reactivity

Stability	
Stable: Stable.	
Hazardous decomposition products	
Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.	
Hazardous polymerization	
Hazardous polymerization: Will not occur.	

# Section 11 - Toxicological Information

### Route of exposure

Skin contact: May cause skin irritation.

Skin absorption: May be harmful if absorbed through the skin.

Eye contact: May causes eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed.

Sensitization

Sensitization: Will not occur.

Additional toxicological information

To our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

# Section 12 - Ecological Information No data available

# Section 13 - Disposal Considerations

Appropriate method of disposal of substance or preparation Dispose together with excess water.

# Section 14 - Transport Information

Transport precautions

Prevent damage to the container due to falling over or being dropped.

# Section 15 - Regulatory Information Applicable laws and regulations

None

### Section 16 - Other Information

#### References

Sigma Aldrich Material Safety Data Sheets, Merck Material Safety Data Sheets, etc.

Please inform operators of the contents of this data sheet, by providing it in the work place.

- The hazard and toxicity evaluation has not necessarily been sufficient, so handle with sufficient care.
- · The values for concentration and physical and chemical properties are not guaranteed.
- The cautions and other information apply to normal handling only.

#### Department issuing MSDS

Life Science Laboratory, Shimadzu Corporation

	Date Created: 04/13/200
Section 1 - Product and Company Inform	ation
Product name	0.5μg/μL pTD1 Vector
Company name	Shimadzu Corporation
Division	
Address	1. Nishingkyo Kuwabaracho. Nakagyo ku. Kyoto 604 8511 JAPAN
	+ 91 .75 .923 .1351
	+ 81 75 923 1364
Reference number	TDIC MSDS 4
Section 2 - Composition (Information on	Ingradiant
Identification of substance	Mixture
Components and concentration	Water >98%, Tris 0.12%, Ethylenediamine tetraacetic acid (EDTA) 0.03%, etc.
The single substance information of eth	ylenediamine tetraacetic acid (EDTA) is shown below.
Substance name	Ethylenediaminetetraacetic acid
Formula	C10H16N208
Synonyms	Ethylenediamine N.N.N'.N'-tetraacetic acid
	EDTA
CAS No.	60 00 4
Government official serial No.	2 -1263
Section 3 - Hazards Identification (ED	ΤΑ)
	Irritant Irritating to avec respiratory system and skin
For additional information on toxicity,	please refer to section 11.
Section 4 - First Aid Measures (EDTA)	
Oral exposure	
If swallowed, wash out mout	h with water provided person is conscious. Call a physician.
Inhalation exposure	
If inhaled, remove to fresh	air. If not breathing gives artificial respiration. If breathing is difficult, give oxygen.
Dermal exposure	
In case of contact, immedia	tely wash skin with soap and copious amounts of water.
Eye exposure	
In case of contact, immedia	tely flush eyes with copious amounts of water for at least 15 minutes.
	TA)
Flash point	N/A
Autoignition temp	N/A
Flammability	N/A
Extinguishing media	Suitable: Water spray, Carbon dioxide, dry chemical powder, or appropriate foam
Eirefighting	
Protective equipment: Weer	salf contained breathing apparatus and protective clothing to provent contact with skip and avec
Specific hazard(s): Emits t	oxic funes under fire conditions.
Section 6 - Accidental Release Measure	s (EDTA)

Section 6 - Accidental Release Measures (EDI
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Procedure(s) of personal precaution(s)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for cleaning up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after

Section 7 - Handling and Storage				
Handling Make sure that it does not contact t	he eyes or skin.			
Storage Store at - 20 .				
Section 8 - Exposure Controls/Personal Protecti	ve Equipment (EDTA)			
Engineering controls	Safety shower and eye bath. Mechanic	al exhaust required.		
Personal protective equipment	Respiratory: Government approved res	pirator.		
	Hand: Compatible chemical -resistant	gloves.		
	Eye: Chemical safety goggles.			
General hygiene measures	Wash thoroughly after handling.			
Section 9 - Physical/Chemical Properties (EDTA)				
Appearance	Color: White (0.5 $\mu$ g/ $\mu$ L pTD1 Vector	: Colorless)		
	Form: Powder ( $0.5 \mu g/\mu L pTD1$ Vector	: Liquid)		
Deservation	V- I	A4 4		
Property	value	At temperature or pressure		
Molecular weight	292 24			
PH	2.5	23 . Concentration: 10g/l		
BP/BP range	N/A	,		
MP/MP range	250			
Freezing point	N/A			
Vapor Pressure	N/A			
Vapor Density	N/A			
Saturated vapor conc.	N/A			
SG/density	N/A			
Bulk density	N/A			
Odor threshold	N/A			
Volatile%	N/A			
VOC content	N/A			
Water content	N/A			
Solvent content	N/A			
Evaporation rate	N/A			
Viscosity	N/A			
Surface tension	N/A			
Partition coefficient	Log Kow: -3.34			
Decomposition temp.	N/A			
Flash point	N/A			
Explosion limits	N/A			
Flammability	N/A			
Autoignition temp	N/A			
Refractive index	N/A			
Optical rotation	N/A			
Miscellaneous data	N/A			
Solubility	Only and On AN in NoOL AN OO const	ata anlarlana		
	Solvent: 0.1M In NaUH 1M, 20 Compl	ere, cororress		

. . . . . . .

Section 10 - Stability and Reactivity (EDTA)

material pickup is complete.

Stability

Stable: Stable.

Materials to avoid: Strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

Hazardous polymerization Hazardous polymerization: Will not occur

Section 11 -Toxicological Information (EDTA) Route of exposure Skin contact: May cause skin irritation. Skin absorption: May be harmful if absorbed through the skin. Eye contact: Causes eye irritation. Inhalation: May be harmful inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed. Sensitization Sensitization: Will not occur. Signs and symptoms of exposure To our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Toxicity data Oral, Rat LD50=4000mg/kg Intraperitoneal, Rat LD50=397mg/kg Remarks: Behavioral: Convulsions or effect on seizure threshold. Oral, Mouse LD50=30mg/kg Intraperitoneal, Mouse LD50=250mg/kg Intravenous, Mouse LD50=28.5mg/kg Irritation data Skin, Rabbit Remarks: No irritation effect Eyes, Rabbit Remarks: Moderate irritation effect Chronic exposure - Teratogen Species: Rat Does: 7632mg/kg Route of application: Oral Exposure time: (7 -14D PREG) Result: Specific developmental abnormalities: Eye, ear. Specific developmental abnormalities: Craniofacial (including nose and tongue). Specific developmental abnormalities: Musculoskeletal system. Species: Rat Does: 7632mg/kg Route of application: Oral Exposure time: (7 -14D PREG) Result: Specific developmental abnormalities: Cardiovascular (circulatory) system. Specific developmental abnormalities: Respiratory system. Specific developmental abnormalities: Urogenital system. Chronic exposure - Mutagen Species: Rat Does: 0.6mmol/l

Cell type: Other cell types

Mutation test: DNA inhibition

Species: Mouse Route: Intraperitoneal Does: 186mg/kg Mutation test: Micronucleus test

Species: Mouse Route: Oral Does: 15mg/kg Mutation test: Micronucleus test

Species: Mouse Does: 40.5mmol/I Cell type: Lymphocyte Mutation test: DNA damage

Species: Mouse Route: Intraperitoneal Does: 50mmol/l Mutation test: Cytogenetic analysis

Species: Mouse Does: 25.2mmol/I Cell type: Lymphocyte Mutation test: Mutation in mammalian somatic cells

Species: Hamster Does: 0.1mmol/I Cell type: Embryo Mutation test: Unscheduled DNA synthesis

Species: Hamster Does: 0.5mg/l Cell type: Fibroblast Mutation test: DNA inhibition

Species: Hamster Does: 0.03mmol/I Cell type: Embryo Mutation test: Sister chromatid exchange

Species: Hamster Does: 0.25mmol/l Cell type: Kidney Mutation test: DNA inhibition

Chronic exposure - Reproductive hazard

Species: Rat Does: 7632mg/kg Route of application: Oral Exposure time: (7 -14D PREG) Result: Effects on fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on embryo or fetus: fetotoxicity (except death, e.g., stunted fetus).

Species: Rat Does: 3g/kg Route of application: Subcutaneous Exposure time: (7–14D PREG) Result: Effects on fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on embryo or fetus: Fetotoxicity (except death, e.g., stunted fetus).

Section 12 - Ecological Information (EDTA)

Acute ecotoxicity tests

Test type: EC50 Daphnia Species: Daphnia magna Time: 48h Value: 113mg/l

Test type: LC50 Fish Species: Lepomis macrochirus (Bluegill) Time: 96h Value: 34 62mg/l

Test type: LC50 Fish Species: Pimephales promelas (Fathead minnow) Time: 96h Value: 44.2 -76.5mg/l

Additional results/data from relevant scientific experiments

May be harmful to aquatic organisms due to the shift of the pH. Avoid contamination of the environment.

Section 13 - Disposal Considerations (EDTA)

Appropriate method of disposal of substance or preparation

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Section 14 - Transport Information

#### Transport precautions

Prevent damage to the container due to falling over or being dropped.

Section 15	- Regulatory	y Information (EDTA)
Applicable	laws and regu	ulations
	TSCA	Registered
	EINECS	2004494
	PRTR	1 -47

Section 16 - Other Information

References

Sigma Aldrich Material Safety Data Sheets, Merck Material Safety Data Sheets, etc.

Please inform operators of the contents of this data sheet, by providing it in the work place.

- · The hazard and toxicity evaluation has not necessarily been sufficient, so handle with sufficient care.
- $\cdot$   $\,$  The values for concentration and physical and chemical properties are not guaranteed.
- The cautions and other information apply to normal handling only.

#### Department issuing MSDS

Life Science Laboratory, Shimadzu Corporation

Section 1 - Product and Company Inform	tion
Product name	0.5ug/ul Control DNA
Company name	Shimadzu Corporation
Division	Life Science Laboratory
ddress	1, Nishinokyo Kuwabaracho, Nakagyo ku, Kyoto 604 8511 JAPAN
echnical phone	+ 81 -75 -823 -1351
ax	+ 81 -75 -823 -1364
leference number	TDIC MSDS 5
Section 2 - Composition/Information on	Ingredient
dentification of substance	Mixture
Components and concentration	Water >98%, Tris 0.12%, Ethylenediaminetetraacetic acid (EDTA) 0.03%, etc.
The single substance information of eth	lenediaminetetraacetic acid (EDTA) is shown below.
Substance name	Ethylenediaminetetraacetic acid
Formula	C10H16N208
Synonyms	Ethylenediamine N,N,N',N' -tetraacetic acid
	EDTA
CAS No.	60 00 4
Government official serial No.	2 -1263
Section 3 – Hazards Identification (ED	(A)
Emergency overview	Irritant. Irritating to eyes, respiratory system and skin.
For additional information on toxicity,	please refer to section 11.
Section 4 – First Aid Measures (EDTA)	
Dral exposure	
If swallowed, wash out mouth	n with water provided person is conscious. Call a physician.
Inhalation exposure	
If inhaled, remove to fresh	air. If not breathing gives artificial respiration. If breathing is difficult, give oxygen.
Dermal exposure	
In case of contact, immedia	ely wash skin with soap and copious amounts of water.
Eye exposure	
In case of contact, immedia	ely flush eyes with copious amounts of water for at least 15 minutes.
Section 5 – Fire Fighting Measures (ED	<sup>7</sup> A)
lash point	N/A
autoignition temp	N/A
lammability	N/A
xtinguishing media	Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.
Firefighting	
Protective equipment: Wear s	self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific hazard(s): Emits to	oxic fumes under fire conditions.
Section 6 - Accidental Release Measures	s (EDTA)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for cleaning up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after

Section 7 - induling and Storage     Handling Nake sure that it Goes not contact the eyes or skin. Storage Storage 1 - 20 .     Storage Storage Controls/Personal Protect/ve Equipment (EDTA)     Engineering controls   Safety shower and eye bath. Nechanical exhaust required.     Personal protect/ve equipment   Respiratory: Government approved respirator. Hand: Corpatible Control gloves. Eye: Chemical 4rest start googles.     General hygione measures   Respiratory: Government approved respirator. Hand: Corpatible Control gloves. Eye: Chemical 4rest start googles.     Section 9 - Physical/Chemical Properties (EDTA)   Color: White (0.5 µ g/ µL Control DW: Clories)     Appearance   Color: White (0.5 µ g/ µL Control DW: Clories)     Property   Value   At temperature or pressure     Molecular weight   29.2.2.4     PH   2.5.2   23 , Concentration: 10g/1     BP/Br range   N/A     BP/Br range   N/A     Barding Area   N/A     Saturated vapor conc.   N/A     Saturated vapor conc.   N/A     Saturated vapor conce.   N/A <th></th> <th></th> <th></th> <th></th>				
Manual ing     Make sure that it does not contact the eyes or skin.       Storage     Store at - 20 .       Section 8 - Exposure Controls/Personal Protective Equipment (EDTA)     Engineering controls       Engineering controls     Safety shower (EDTA)       Respiratory: Government approved respirator. Hand: Compatible checked resistant glows. Eye: Checked safety poggles.       Section 9 - Physical/Chenical Properties (EDTA)       Appearance       Form: Powder (0.5 μ g/ μ L Control DM: Colorless)       Form: Powder (0.5 μ g/ μ L Control DM: Liquid)       Property     Value       At temperature or pressure       Molecular weight     292.24       PH     2.5       Parage     N/A       WAP range     250       Freezing point     N/A       Vapor Density     N/A       Subrato vapor conc.     N/A       Soldensity     N/A <th>Section 7 - Handling and Storage</th> <th></th> <th></th> <th></th>	Section 7 - Handling and Storage			
Storage   Store at - 20 .     Section 6 - Exposure Controls/Personal Protective Equipment (EDTA)   Engineering controls     Engineering controls   Safety shower and eye bath. Mechanical exhaust required.     Personal protective equipment   Respiratory: Sverment approved respirator.     Mark: Compatible chemical resistant gloves.   Eye: Chemical safety gnggles.     General hygiene measures   Mash thorophly after handling.     Section 9 - Physical/Chemical Properties (EDTA)   Appearance     Appearance   Color: White (0.5 µg/µL Control DNA: Colorless)     Form: Powder (0.5 µg/µL Control DNA: Liquid)   Form: Powder (0.5 µg/µL Control DNA: Colorless)     Property   Value   At temperature or pressure     Molecular weight   292.24   PH     PH argue   250   Source N/A     Vapor Pressure   N/A   VA     Wapor Vensure   N/A   Source N/A     Source N/A   N/A   Source N/A<	Handling Make sure that it does not	contact the eyes or skin.		
Saction 8 - Exposure Controls/Personal Protective Equipment (EDTA) Engineering controls Safety shower and eye bath. Mechanical exhaust required. Personal protective equipment Respiratory: Government approved respirator. Hand: Compatible chemical resistant gloves. Eye: Chemical safety goggles. General hygiene measures Tash thoroughly after handling. Section 9 - Physical/Chemical Properties (EDTA) Appearance Color: White (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Form: Powdor (0.5 µ g/ µ L Control DMA: ColorIess) Freezing point N/A Saturated vapor conc. N/A Saturated vapor conc. Saturated vapor conc	Storage Store at - 20 .			
Section 8 - Exposure Controls/Personal Protective Equipment (EDTA)     Engineering controls   Safety shower and eye bach kechanical exclusion.     Personal Protective equipment   Respiratory: Government approved respirator.     Ham: Compatible Chemical resistant glows.   Eye: Chemical astery poggies.     Section 9 - Physical/Chemical Properties (EDTA)     Appearance   Color: Mhite (0.5 µ g/ µL Control DN: Colorless) Form: Powder (0.5 µ g/ µL Control DN: Liquid)     Property   Value     At temperature or pressure     Nolecular weight   292.24     PH   2.5   23 , Concentration: 10g/l     PJ/P range   N/A     W/W range   250     Pressure   N/A     Wapor Pressure   N/A     Vapor Pressure   N/A     Solurated vapor conc.   N/A     Solurated vapor conc.   N/A     Solver toontent   N/A     Void content   N/A     Void content   N/A     Solver toontent   N/A     Solver toontent   N/A     Vapor Density   N/A     Solver toontent   N/A     Solver toontent   N/A <td< td=""><td></td><td></td><td></td><td></td></td<>				
Engineering controls Safety shower and eye bath. Nechanical exhaust required. Personal protective equipment Respirator: Hard: Compatibile chenical resistant glowes. Eye: Chemical safety opgles. General hygiene measures Wash thoroughly after handling. Section 9 - Physical/Chemical Properties (EDTA) Appearance Color: White (0.5 µ g/ µ L Control DNA: Colorless) Form: Powder (0.5 µ g/ µ L Control DNA: Liquid) Property Value At temperature or pressure Nolecular weight 232.24 PH 2.5 23 , Concentration: 10g/I BP/BP range N/A Vapor Density N/A Saturated vapor conc. N/A Saturated vapor conc. N/A Solvent content N/A Vacor Density N/A Saturated vapor conc. N/A Saturated vapor conc	Section 8 - Exposure Controls/Personal	Protective Equipment (EDTA)		
Personal protective equipment Respiratory: Government approved respirator. Hand: Compatible chemical resistant gloves. Eye: Chemical safety poggles.   Section 9 - Physical/Chemical Properties (EDT)   Appearance Color: White (0.5 µ g/ µ L Control DNA: Colorless) Form: Powder (0.5 µ g/ µ L Control DNA: Liquid)   Property Value   At temperature or pressure   Wolecular weight 22,24   PH 2,5 23 , Concentration: 10g/1   BP/BP range N/A   PMP region N/A   Vapor Pressure N/A   Vapor Consci y N/A   Soldentity N/A   Soldentity N/A   Soldentity N/A   Value Value   Soldentity N/A   S	Engineering controls	Safety shower and eye	bath. Mechanical exhaust required.	
Had: Corpatible chemical resistant gloves. Eye: Chemical safety goggles.   General hygiene measures Wash throughly after handling.   Section 9 - Physical/Chemical Properties (EDT)/// Appearance Color: White (0.5µg/µL Control DNA: Coloriess) Form: Powder (0.5µg/µL Control DNA: Liquid)   Property Value At temperature or pressure   Nolecular weight 292.24   PH 2.5 23 , Concentration: 10g/I   BP/BP range N/A   P/IP range N/A   Value At temperature or pressure   Nolecular weight 292.24   PH 2.5   23 , Concentration: 10g/I   BP/BP range N/A   Value NA   Vapor Density N/A   Vapor Density N/A   Saturated vapor conc. N/A   Saturat	Personal protective equipment	Respiratory: Governmer	nt approved respirator.	
General hygiene measures     Eye: Chenical safety poggles. Wash thoroughly after handling.       Section 9 - Physical/Chemical Properties (EDTA)		Hand: Compatible chemi	ical -resistant gloves.	
General hygiene measures Wash thoroughly after handling.   Appearance Color: White (0.5 µ g/µL Control DNA: Coloriess) Form: Powder (0.5 µ g/µL Control DNA: Liquid)   Property Value At temperature or pressure   Nolecular weight 292.24   PH 2.5 23 , Concentration: 10g/I   BP/BP range N/A   MP/IP range 250   Freezing point N/A   Vapor Pressure N/A   Vapor Pressure N/A   Statrated vapor conc. N/A   Soldensity N/A   Volatile% N/A   Volatile% N/A   Soldensity N/A   Soldensity N/A   Vapor freesing N/A   Soldensity N/A   Soldensity N/A   Volatile% N/A   Soldensity N/A   Soldensity N/A   Soldent content N/A   Papeodation rate N/A   Proposit		Eye: Chemical safety g	goggles.	
Section 9 - Physical/Chemical Properties (EDTA)     Appearance   Color: White (0.5µg/µL Control DNA: Colorless) Form: Powder (0.5µg/µL Control DNA: Liquid)     Property   Value   At temperature or pressure     Molecular weight   292.24     PH   2.5   23 , Concentration: 10g/I     BP/BP range   N/A     MP/MP range   250     Freezing point   N/A     Vapor Density   N/A     Solvant dvapor conc.   N/A     Solvant content   N/A <tr< td=""><td>General hygiene measures</td><td>Wash thoroughly after</td><td>handling.</td><td></td></tr<>	General hygiene measures	Wash thoroughly after	handling.	
Section 9 - Physical/Chemical Properties (EDTA)     Appearance   Color: White (0.5 µ g/ µ L Control DNA: Colorless) Form: Powder (0.5 µ g/ µ L Control DNA: Liquid)     Property   Value   At temperature or pressure     Molecular weight   292.24     PH   2.5   23 , Concentration: 10g/1     P/BP range   N/A     MP/WP range   250     Freezing point   N/A     Vapor Pressure   N/A     Vapor Pressure   N/A     Vapor Pressure   N/A     Soldensity   N/A     Soldensity   N/A     Odor threshold   N/A     Volatile%   N/A     Pressity   N/A     Property				
Appearance   Color: White (0.5 µg/µL Control DM: Colorless) Form: Powder (0.5 µg/µL Control DM: Liquid)     Property   Value   At temperature or pressure     Nolecular weight   292.24     PH   2.5   23, Concentration: 10g/I     BP/BP range   N/A     BP/BP range   N/A     PM/P range   250     Freezing point   N/A     Vapor Density   N/A     Saturated vapor conc.   N/A     Sd/density   N/A     Sd/density   N/A     Sd/density   N/A     Volatile%   N/A     Volatile%   N/A     Solvent content   N/A     Volatile%   N/A     Volatile%   N/A     Surface tension   N/A     Partition coefficient   Log Kow: -3.34     Decorposition temp.   N/A     Flam point   N/A     Surface tension   N/A     Flam point   N/A     Surface tension   N/A     Flam point temp.   N/A     Flam point temp.   N/A     Flam point temp   N/A	Section 9 - Physical/Chemical Propertie	es (EDTA)		
Form:     Prowder (0.5 µ g/ µ L Control DM: Liquid)       Property     Value     At temperature or pressure       Molecular weight     292.24       PH     2.5     23 , Concentration: 10g/I       BP/BP range     N/A       MP/IM range     250       Freezing point     N/A       Vapor Pressure     N/A       Vapor Pressure     N/A       Saturated Vapor conc.     N/A       Sofdensity     N/A       God threshold     N/A       Volatile%     N/A       Volatile%     N/A       Volatile%     N/A       Sofdensity     N/A       Volatile%     N/A       Volatile%     N/A       Volatile%     N/A       Volatile%     N/A       Sofden transion     N/A       Pertition coefficient     Log Kow: 3.34       Decomposition temp.     N/A       Property     N/A       Sofden Instep     N/A       Propertion temp.     N/A       Propertinstep     N/A	Appearance	Color: White (0.5µg/	μL Control DNA: Colorless)	
Property Value At temperature or pressure   Nolecular weight 292.24   PH 2.5 23 , Concentration: 10g/I   P/BP range NA   W/W range 250   Freezing point NA   Vapor Pressure NA   Vapor Pressure NA   Vapor Pressure NA   Saturated vapor conc. NA   Soldensity NA   Soldensity NA   Odor threshold NA   Odor threshold NA   Volaction NA   Volaction NA   Volaction rate NA   Volaction resp. NA   Surface tension NA   Partition coefficient Log Kow: 3.34   Decomposition temp. NA   Flash point NA   Refractive index NA   Refractive index NA   Solutinity Solutinity   Solutinity Solutinity		Form: Powder (0.5µg/	μL Control DNA: Liquid)	
Property value At temperature of pressure   Nolecular weight 292.24   PH 2.5 23 , Concentration: 10g/I   P/IP range NA   WP/IP range 250   Freezing point N/A   Vapor Density NA   Saturated vapor conc. N/A   SG/density N/A   Bulk density N/A   Odor threshold N/A   Volcentet N/A   Volcentet N/A   Volcentet N/A   Solvent content N/A   Evaporation rate N/A   Solvent content N/A   Decomposition temp. N/A   Partition coefficient Log Kow: 3.34   Decomposition temp. N/A   Flash point N/A   Flash point N/A   Flash point N/A   Refractive index N/A   Refractive index N/A	Decreation	Value		
Molecular weight     292.24       PH     2.5     23 . Concentration: 10g/I       BP/BP range     N/A       BP/BP range     SO       Freezing point     N/A       Vapor Pressure     N/A       Vapor Density     N/A       Soldensity     N/A       Soldensity     N/A       Soldensity     N/A       Odor threshold     N/A       Volatilék     N/A       Volatilék     N/A       Volatilék     N/A       Solvent content     N/A       Volatilék     N/A       Solvent content     N/A       Viscosity     N/A       <	Property	varue	At temperature of pressure	
PH     2.5     23 , Concentration: 10g/I       BP/BP range     N/A       BP/BP range     250       Freezing point     N/A       Vapor Pressure     N/A       Vapor Density     N/A       Saturated vapor conc.     N/A       Soldensity     N/A       Soldensity     N/A       Odor threshold     N/A       Volatile%     N/A       VOC content     N/A       Volatile%     N/A       Viscosity     N/A       Solvent content     N/A       Viscosity     N/A       Partition coefficient     Log Kow: 3.34       Decomposition temp.     N/A       Flamability     N/A       Autoignition temp     <	Molecular weight	292.24		
BP/8P range N/A   MP/MP range 250   Freezing point N/A   Vapor Pressure N/A   Vapor Density N/A   Saturated vapor conc. N/A   Sofdensity N/A   Bulk density N/A   Odor threshold N/A   Odor threshold N/A   Volatile% N/A   Volatile% N/A   Volatile% N/A   Solvent content N/A   Partition coefficient Log Kow: 3.34   Decomposition temp. N/A   Flamab point N/A   Explosion limits N/A   Flamability N/A   Autoignition temp N/A   Miscel laneous data N/A   Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	PH	2.5	23 , Concentration: 10g/I	
MP/MP range 250   Freezing point N/A   Vapor Pressure N/A   Vapor Density N/A   Saturated vapor conc. N/A   SG/density N/A   Bulk density N/A   Odor threshold N/A   Volatile% N/A   VOC content N/A   VOC content N/A   Votatile% N/A   Solvent content N/A   Solvent content N/A   Surface tension N/A   Surface tension N/A   Partition coefficient Log Kow: 3.34   Decomposition temp. N/A   Explosion limits N/A   Flash point N/A   Flash point N/A   Autoignition temp N/A   Autoignition temp N/A   Optical rotation N/A   Miscellaneous data	BP/BP range	N/A		
Freezing pointN/AVapor DressureN/AVapor DensityN/ASaturated vapor conc.N/ASG/densityN/ABulk densityN/AOdor thresholdN/AOdor thresholdN/AVO contentN/AWater contentN/ASolvent contentN/ASurface tensionN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AFlash pointN/AFlash pointN/ASurface tensionN/AFlash pointN/AStartition temp.N/AStartition temp.N/AStartition temp.N/AStartition temp.N/AStartition tempN/AStartition tempN/AStartition tempN/AStartition tempN/AStartition tempN/AStartition tempN/AStartition tempN/AStartition tempN/AStartition tempN/AStartition tempN/AMiscellaneous dataN/ASolubilitySolvent: 0.111 in NaOH 111, 20 complete, colorless	MP/MP range	250		
Vapor PressureN/AVapor DensityN/ASaturated vapor conc.N/ASd/densityN/ABulk densityN/AOdor thresholdN/AVolatile%N/AVolatile%N/AVoc contentN/ASolvent contentN/AEvaporation rateN/AViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlamabilityN/AAutoignition tempN/AFlamabilityN/AAutoignition tempN/ASolvent contentN/AKipolici netmp.N/ASolvent contentN/AFlamabilityN/AAutoignition tempN/AFlamabilityN/AAutoignition tempN/ASolvent contentN/AN/AN/AFlamabilityN/AAutoignition tempN/ASolvent contentN/AMiscellaneous dataN/ASolvent contentN/ASolvent contentN/A <td>Freezing point</td> <td>N/A</td> <td></td> <td></td>	Freezing point	N/A		
Vapor DensityN/ASaturated vapor conc.N/ASG/densityN/ABulk densityN/AOdor thresholdN/AVolatile%N/AVOC contentN/AVOC contentN/ASolvent contentN/ASolvent contentN/AViscosityN/AViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AFlash pointN/AAutoignition tempN/AAutoignition tempN/AAutoignition tempN/ASolvent: valuekN/ASolubilitySolvent: 0.1M in NaOH 1M, 20 complete, colorless	Vapor Pressure	N/A		
Saturated vapor conc.N/ASG/densityN/ABulk densityN/AOdor thresholdN/AOdor thresholdN/AVolatile%N/AVOC contentN/AWater contentN/ASolvent contentN/ASolvent contentN/AViscosityN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AFlash pointN/AFlamabilityN/AAutoignition tempN/APoical rotationN/AN/AN/AN/AN/AFlamabilityN/AOptical rotationN/AN/AN/ASolubilitySolvent: 0.1M in NaOH 1M, 20 complete, colorless	Vapor Density	N/A		
SG/density N/A   Bulk density N/A   Odor threshold N/A   Volatile% N/A   Voc content N/A   Water content N/A   Solvent content N/A   Evaporation rate N/A   Viscosity N/A   Surface tension N/A   Partition coefficient Log Kow: 3.34   Decomposition temp. N/A   Flash point N/A   Flash point temp N/A   Autoignition temp N/A   Refractive index N/A   Optical rotation N/A   Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Saturated vapor conc.	N/A		
Bulk density N/A   Odor threshold N/A   Volatile% N/A   Voc content N/A   Water content N/A   Solvent content N/A   Evaporation rate N/A   Viscosity N/A   Surface tension N/A   Partition coefficient Log Kow: 3.34   Decomposition temp. N/A   Flash point N/A   Flash point N/A   Flammability N/A   Autoignition temp N/A   Optical rotation N/A   Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	SG/density	N/A		
Odor thresholdN/AVolatile%N/AVOC contentN/AWater contentN/ASolvent contentN/AEvaporation rateN/AViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AFlamabilityN/AAutoignition tempN/ARefractive indexN/AOptical rotationN/ASolvent: 0.1M in NaOH 1M, 20 complete, colorless	Bulk density	N/A		
Volatile%N/AVOC contentN/AWater contentN/ASolvent contentN/AEvaporation rateN/AViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AExplosion limitsN/AFlamabilityN/AAutoignition tempN/ARefractive indexN/AOptical rotationN/ASolvent: 0.1M in NaOH 1M, 20 complete, colorless	Odor threshold	N/A		
VOC contentN/AWater contentN/ASolvent contentN/AEvaporation rateN/AViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AExplosion limitsN/AFlammabilityN/AAutoignition tempN/ARefractive indexN/AOptical rotationN/ASolubilitySolvent: 0.1M in NaOH 1M, 20 complete, colorless	Volatile%	N/A		
Water contentN/ASolvent contentN/AEvaporation rateN/AViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AExplosion limitsN/AFlammabilityN/AAutoignition tempN/ARefractive indexN/AOptical rotationN/ASolubilitySolvent: 0.1M in NaOH 1M, 20 complete, colorless	VOC content	N/A		
Solvent content   N/A     Evaporation rate   N/A     Viscosity   N/A     Surface tension   N/A     Partition coefficient   Log Kow: 3.34     Decomposition temp.   N/A     Flash point   N/A     Explosion limits   N/A     Flammability   N/A     Autoignition temp   N/A     Refractive index   N/A     Optical rotation   N/A     Solubility   Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Water content	N/A		
Evaporation rateN/AViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AExplosion limitsN/AFlammabilityN/AAutoignition tempN/ARefractive indexN/AOptical rotationN/ASolubilitySolvent: 0.1M in NaOH 1M, 20 complete, colorless	Solvent content	N/A		
ViscosityN/ASurface tensionN/APartition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AExplosion limitsN/AFlammabilityN/AAutoignition tempN/ARefractive indexN/AOptical rotationN/ASolubilitySolvent: 0.1M in NaOH 1M, 20 complete, colorless	Evaporation rate	N/A		
Surface tension   N/A     Partition coefficient   Log Kow: 3.34     Decomposition temp.   N/A     Flash point   N/A     Explosion limits   N/A     Flammability   N/A     Autoignition temp   N/A     Refractive index   N/A     Optical rotation   N/A     Solubility   Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Viscosity	N/A		
Partition coefficientLog Kow: 3.34Decomposition temp.N/AFlash pointN/AExplosion limitsN/AFlammabilityN/AAutoignition tempN/ARefractive indexN/AOptical rotationN/AMiscellaneous dataN/ASolubilitySolvent: 0.1M in NaOH 1M, 20 complete, colorless	Surface tension	N/A		
Decomposition temp.   N/A     Flash point   N/A     Explosion limits   N/A     Flammability   N/A     Autoignition temp   N/A     Refractive index   N/A     Optical rotation   N/A     Miscellaneous data   N/A     Solubility   Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Partition coefficient	Log Kow: -3.34		
Flash point   N/A     Explosion limits   N/A     Flammability   N/A     Autoignition temp   N/A     Refractive index   N/A     Optical rotation   N/A     Miscellaneous data   N/A     Solubility   Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Decomposition temp.	N/A		
Explosion limits N/A   Flammability N/A   Autoignition temp N/A   Refractive index N/A   Optical rotation N/A   Miscellaneous data N/A   Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Flash point	N/A		
Flammability N/A   Autoignition temp N/A   Refractive index N/A   Optical rotation N/A   Miscellaneous data N/A   Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Explosion limits	N/A		
Autoignition temp N/A   Refractive index N/A   Optical rotation N/A   Miscellaneous data N/A   Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Flammability	N/A		
Refractive index N/A   Optical rotation N/A   Miscellaneous data N/A   Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Autoignition temp	N/A		
Optical rotation N/A   Miscellaneous data N/A   Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Refractive index	N/A		
Miscellaneous data N/A Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless N/A = not available	Optical rotation	N/A		
Solubility Solvent: 0.1M in NaOH 1M, 20 complete, colorless	Miscellaneous data	N/A		
N/A = not available	Solubility	Solvent: 0.1M in NaOH	1M, 20 complete, colorless	
	N/A = not available			

Section 10 - Stability and Reactivity (EDTA)

material pickup is complete.

# Stability

Stable: Stable.

Materials to avoid: Strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

Hazardous	polymerizat	ion			
	Hazardous	polymerization:	Will	not	occur

Section 11 - Toxicological Information (EDTA) Route of exposure Skin contact: May cause skin irritation. Skin absorption: May be harmful if absorbed through the skin. Eye contact: Causes eye irritation. Inhalation: May be harmful inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed. Sensitization Sensitization: Will not occur. Signs and symptoms of exposure To our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Toxicity data Oral, Rat LD50=4000mg/kg Intraperitoneal, Rat LD50=397mg/kg Remarks: Behavioral: Convulsions or effect on seizure threshold. Oral, Mouse LD50=30mg/kg Intraperitoneal, Mouse LD50=250mg/kg Intravenous, Mouse LD50=28.5mg/kg Irritation data Skin, Rabbit Remarks: No irritation effect Eyes, Rabbit Remarks: Moderate irritation effect Chronic exposure - Teratogen Species: Rat Does: 7632mg/kg Route of application: Oral Exposure time: (7 -14D PREG) Result: Specific developmental abnormalities: Eye, ear. Specific developmental abnormalities: Craniofacial (including nose and tongue). Specific developmental abnormalities: Musculoskeletal system. Species: Rat Does: 7632mg/kg Route of application: Oral Exposure time: (7 -14D PREG) Result: Specific developmental abnormalities: Cardiovascular (circulatory) system. Specific developmental abnormalities: Respiratory system. Specific developmental abnormalities: Urogenital system. Charonic exposure - Mutagen Species: Rat Does: 0.6mmol/l

Cell type: Other cell types

Mutation test: DNA inhibition

Species: Mouse Route: Intraperitoneal Does: 186mg/kg Mutation test: Micronucleus test

Species: Mouse Route: Oral Does: 15mg/kg Mutation test: Micronucleus test

Species: Mouse Does: 40.5mmol/I Cell type: Lymphocyte Mutation test: DNA damage

Species: Mouse Route: Intraperitoneal Does: 50mmol/l Mutation test: Cytogenetic analysis

Species: Mouse Does: 25.2mmol/I Cell type: Lymphocyte Mutation test: Mutation in mammalian somatic cells

Species: Hamster Does: 0.1mmol/I Cell type: Embryo Mutation test: Unscheduled DNA synthesis

Species: Hamster Does: 0.5mg/l Cell type: Fibroblast Mutation test: DNA inhibition

Species: Hamster Does: 0.03mmol/I Cell type: Embryo Mutation test: Sister chromatid exchange

Species: Hamster Does: 0.25mmol/l Cell type: Kidney Mutation test: DNA inhibition

Chronic exposure - Reproductive hazard

Species: Rat Does: 7632mg/kg Route of application: Oral Exposure time: (7 -14D PREG) Result: Effects on fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on embryo or fetus: fetotoxicity (except death, e.g., stunted fetus).

Species: Rat Does: 3g/kg Route of application: Subcutaneous Exposure time: (7–14D PREG) Result: Effects on fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on embryo or fetus: Fetotoxicity (except death, e.g., stunted fetus).

Section 12 - Ecological Information (EDTA)

Acute ecotoxicity tests

Test type: EC50 Daphnia Species: Daphnia magna Time: 48h Value: 113mg/l

Test type: LC50 Fish Species: Lepomis macrochirus (Bluegill) Time: 96h Value: 34 62mg/l

Test type: LC50 Fish Species: Pimephales promelas (Fathead minnow) Time: 96h Value: 44.2 -76.5mg/l

Additional results/data from relevant scientific experiments

May be harmful to aquatic organisms due to the shift of the pH. Avoid contamination of the environment.

Section 13 - Disposal Considerations (EDTA)

Appropriate method of disposal of substance or preparation

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Section 14 - Transport Information

#### Transport precautions

Prevent damage to the container due to falling over or being dropped.

Section 15	- Regulatory	y Information (EDTA)
Applicable	laws and regu	ulations
	TSCA	Registered
	EINECS	2004494
	PRTR	1 -47

Section 16 - Other Information

References

Sigma Aldrich Material Safety Data Sheets, Merck Material Safety Data Sheets, etc.

Please inform operators of the contents of this data sheet, by providing it in the work place.

- The hazard and toxicity evaluation has not necessarily been sufficient, so handle with sufficient care.
- · The values for concentration and physical and chemical properties are not guaranteed.
- The cautions and other information apply to normal handling only.

#### Department issuing MSDS

Life Science Laboratory, Shimadzu Corporation