

CREATED 2012/12/13
 UPDATED 2014/04/01

Safety Data Sheet

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

1.1 Product identifier

"Photoneece"DL-1001-C

1.2 Other means of identification

Product No.(SDS No.) S3E-AAAB0C00024-3-1

1.3 Recommended use of the chemical and restrictions on use

(1)Recommended use

Industrial use, examination study use

(2)Restrictions on use

Don't sell for general consumers.

1.4 Supplier's details

(1)Company name

Toray Industries, Inc.

(2)Address

1-1, Nihonbashi-Muromachi 2-chome, Chuo-ku, Tokyo, Japan

(3)Department

Electronic Materials Marketing & Sales Dept.2

(4)Person in charge

Manager, Electronic Coating Materials Sect.

(5)Telephone number

+81-3-3245-4510

(6)FAX number

+81-3-3245-4896

(7)E-mail Address/URL

<http://www.toray.jp/electronic/>

1.5 Emergency phone number

+81-3-3245-4510 Electronic Materials Marketing & Sales Dept.2
 Manager,Electronic Coating Materials Sect.

2. Hazards Identification

2.1 GHS Classification

This product is classified under hazardous according to JIS Z 7252: 2009 (Labeling of chemicals based on GHS).

Physical hazards

Flammable liquids

Category 3

Health Hazards

Acute toxicity -Oral

Category 5

Acute toxicity -Inhalation

Category 4

Skin corrosion/irritation

Category 3

Serious eye damage/eye irritation

Category 1

Toxic to reproduction

Category 1B

Specific target organ toxicity following
 single exposure

Category 2(Central nervous system)

Specific target organ toxicity following
 single exposure

Category 3(Narcotic effects)

2.2 GHS label elements

(1)Pictogram or Symbol



(2)Signal Word

DANGER

(3)Hazard statement

Physical hazards

H226 Flammable liquid and vapour

Health Hazards

H303 May be harmful if swallowed

H316 Causes mild skin irritation

H318 Causes serious eye damage

H332 Harmful if inhaled

H335 May cause respiratory irritation

H360 May damage fertility or the unborn child

H371 May cause damage to organs (state route of exposure if it is conclusively proven that no other routes of exposure cause that hazard : Loss of consciousness, a coma, anesthesia, convulsions, hypopnea by the intake)

(4)Precautionary statement

[Prevention]

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces.-No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P260 Do not breathe gas/mist/vapours.

P261 Avoid breathing gas/mist/vapor.

P264 Wash hands thoroughly after handling.

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

P271 Use only outdoors or in well-ventilated area.

P280 Wear (protective gloves/protective eye/face protection).

[Response]

P310 Immediately call a POISON CENTER or doctor/physician.

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

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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+P311 IF exposed or concerned: Call a POISON CENTER or doctor/physician.

P308+P313 IF exposed or concerned: Get medical advice/attention.

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

P370+P378 In case of fire: Use foam/dry powder/carbon dioxide (CO2) to extinguish.

[Storage]

P404 Store in a closed container.

P405 Store locked up.

Store container tightly closed in freezer

In the case of the use, keep it on the site at a cool place, a good place of the ventilation.

[Disposal]

P501 Dispose of contents/container in accordance with the national/regional/local laws or regulations (a statute and rules).

2.3 Other hazards which do not result in classification

UN number : 1866

UN proper shipping name : Resin Solution Flammable

Transport hazard class(es) : 3

Packing group : 3

2.4 Major symptom and envisioned emergencies

Eyes: flare, pain, lacrimation

Oral Ingestion:vomiting,deep sleep, stuffiness,Loss of consciousness, headache, nausea

Inhalation: cough, deep sleep, headache, throat

Skin: drying of the skin, flare

3. Composition/Information on Ingredients

(1)Substance/Mixture Mixture

(2)Product identity(chemical name, common name)

Polyimide precursor solution

(3)Composition/information on ingredients

A.Information on ingredients

Chemical identity of the substance

Polyimide precursor

Content(%) 5-10%

CAS No. Registered

ENCS No.(Chemical Substances Control Law) Registered

ISHL No.(Industrial Safety and Health Act) Registered

TSCA Registered

Inventory of Existing Chemical Substances Registered

in China (IECSC)

Inventory of Existing Chemical Substances in your exporter

Korea:Registered

Inventory of Existing Chemical Substances in the countries except your exporter

no information available

Chemical identity of the substance

Gamma-Butyrolactone(GBL)

Content(%) 5-10%

CAS No. 96-48-0

ENCS No.(Chemical Substances Control Law) 5-3337

ISHL No.(Industrial Safety and Health Act) 5-3337

TSCA Registered

EC No. 202-509-5

Inventory of Existing Chemical Substances Registered

in China (IECSC)

Inventory of Existing Chemical Substances in your exporter

Korea:KE-10674

Inventory of Existing Chemical Substances in the countries except your exporter

Taiwan:Registered

Chemical identity of the substance

Ethyl lactate(EL)

Content(%) 15-20%

CAS No. 97-64-3

ENCS No.(Chemical Substances Control Law) 2-1371

ISHL No.(Industrial Safety and Health Act) 2-1371

TSCA Registered

EC No. 202-598-0

Inventory of Existing Chemical Substances Registered

in China (IECSC)

Inventory of Existing Chemical Substances in your exporter

Korea:KE-20855

Inventory of Existing Chemical Substances in the countries except your exporter

Taiwan:Registered

Chemical identity of the substance

Propylene glycol monomethyl ether(PGME)

Content(%)	60-65%
CAS No.	107-98-2
ENCS No.(Chemical Substances Control Law)	2-404
ISHL No.(Industrial Safety and Health Act)	2-404
Notifiable number for ISHL	9-496
TSCA	Registered
EC No.	203-539-1
Inventory of Existing Chemical Substances	Registered

in China (IECSC)

Inventory of Existing Chemical Substances in your exporter

Korea:KE-23379

Inventory of Existing Chemical Substances in the countries except your exporter

Taiwan:Registered

B.Additives

Chemical identity of the substance

additives

Content(%)	<5%
CAS No.	Registered
ENCS No.(Chemical Substances Control Law)	Registered
ISHL No.(Industrial Safety and Health Act)	Registered
TSCA	Non-registered
Contribute to GHS classification of the substance/mixture or not	Contribute

C.Impurities

Chemical identity of the substance

N-methylpyrrolidone(NMP)

Content(%)	<1%
CAS No.	872-50-4
ENCS No.(Chemical Substances Control Law)	5-113
ISHL No.(Industrial Safety and Health Act)	8-1-1014
TSCA	Registered
EC No.	212-828-1
Contribute to GHS classification of the substance/mixture or not	Contribute

Applicable or not to declarable substances(EU RoHS, EU REACH(Authorization, SVHC), GADSL, JIG/IEC 62474)

EU REACH; SVHC

GADSL

4. First-aid measures

4.1 Description of first aid measures

(1)Inhalation

Immediately call a POISON CENTER or doctor/physician.

Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Keep the victim warm and quiet.

If breathing has stopped, open his airway, loosen his collar and belt and administer artificial respiration.

Immediately call a POISON CENTER or doctor/physician.

(2)Skin contact

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

Wash with plenty of water.

If skin irritation occurs: Get medical advice/attention.

Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

In case of having allergy, it may cause skin damage. Remove all chemicals immediately. If the reaction to the chemical occur after a while, it is necessary to be taken in medical treatment and observation.

(3)Eye contact

Immediately call a POISON CENTER or doctor/physician.

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.

(4)Ingestion

Immediately call a POISON CENTER or doctor/physician.

Rinse mouth.

Do NOT induce vomiting.

When a vomiting thing grows, it prevents a vomiting thing from flowing into the respiratory tract.

4.2 Most important symptoms and effects, both acute and delayed

Eyes: flare, pain, lacrimation

Oral Ingestion:vomiting,deep sleep, stuffiness,Loss of consciousness, headache, nausea

Inhalation: cough, deep sleep, headache, throat

Skin: drying of the skin, flare

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

5. Firefighting measures

5.1 Extinguishing media

(1)Suitable extinguishing media

Foam/Powder/Carbon dioxide (CO₂)

(2)Unsuitable extinguishing media

Do not use water jet to extinguish a fire.

water mist

5.2 Special hazards arising from the substance or mixture

In case of fire or explosion, do not inhale fumes.

Toxic fumes or gas formed during combustion (Carbon monoxide/Nitrogen Oxides/Sulfur oxides/Carbon dioxide/Peroxide).

There is a possibility of igniting again after fire extinguishing

May cause the contamination by extinguish water

A container might explode by heating

5.3 Specific fire-fighting measures

Stop leak if safe to do so.

Protect surrounding equipment by spraying water from a safe distance.

Remove movable containers from the area of the fire if safe to do so.

Cool containers with water mist.

Be sure to extinguish a fire from the windward side and keep a safe distance from a fire.

Fight a fire from the furthest possible distance. Caution is demanded because containers may burst due to substance dispersion by heat.

Implement appropriate control measures to prevent effluent of substances that may influence environment due during fire-fighting activities.

Cool the containers with large-scale water after fire

5.4 Special protective actions for fire-fighters

Fire-fighting personnel must wear protective equipment (Suitable air inhalator and the chemical protective clothe(heat resitance)).

(8 Exposure Control/Personal Protection)

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ventilate indoor areas well until a work is completed.

Allow only authorized personnel in the area.

Wear appropriate personal protective equipment. (Refer to 8.3 "Individual protection measures")

Immediately, isolate the proper distance for all around as leakage area

6.2 Environmental precautions

Do not discharge to sewers or into drain.

6.3 Methods and materials for containment and cleaning up

In case of a small amount leakage, use adsorbent material (sawdust, soil, sand, waste cloth, or equivalent.) to absorb the liquid and wipe off remaining residue with waste, cloth, rag, etc.

Prevent outflow by surrounding with dirt or equivalent (incombustible material) and collect in an empty container with a shovel or suction machine.

Please stop the outflow of the product when the matter is safe

Connect to ground with all facilities to use or use the antistatic tools when you handle a leakage

6.4 Preventive measures against second disasters

Remove possible sources of ignition in the surrounding area.

Prevent transudate entering into drain, sewer, basement and closing area

Prepare the fire extinguishing machine in case of the igniting case

7. Handling and storage

7.1 Precautions for safe handling

(1) Technical measures

A. Exposure control of handler

Obtain special instructions before use.

Do not handle until all safety precautions have been read understood.

Keep container tightly closed.

Do not breathe gas/mist/vapours.

Avoid breathing gas/mist/vapours.

Do not get in eyes, on skin, or on clothing.

Avoid contact during pregnancy/while nursing.

Wash hands thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

Wear gloves/eye protection/face protection.

Use personal protective equipment as required.

Emergency shower and eyewash station shall be installed near worksites.

Do not generate vapor without good reason by preventing leakage, outflow, and scattering.

Seal containers after each use.

Facilities such as hand wash station, eyewash station, or equivalent shall be installed at resting area.

Wash hands, face, etc. thoroughly after handling.

Do not bring contaminated protective equipments such as gloves or equivalent into resting area.

Do not eat or smoke except the specified area.

B.Prevention of fire/explosion

Obtain special instructions before use.

Do not handle until all safety precautions have been read understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical equipment/ventilating equipment/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharges.

Do not subject to shock/friction.

(2)Local/general exhaust ventilation

Handle in facilities with local or general exhaust ventilation.

(3)Precautions

Handle it under a yellow lamp

(4)Precautions for safe handling

Do not damage containers.

Avoid contact of containers with sharp edges.

This product cools off in dry ice and packs it

Since there is fear of frostbite when dry ice is touched directly,wear a leather glove in handling

(5) Proper hygiene measures

Wash hands before intermissions or and after work.

Do not bring food and drink in work area.

Do not eat or smoke while working.

7.2 Conditions for safe storage, including any incompatibilities

(1)Technical measure

Incompatibility (Specific materials to be avoided)

oxidizer, peroxide, reducing agent, acid, base, acid anhydride, acid chloride

The materials which you should avoid

zinc, copper, aluminum

(2)Proper storage condition

Store in a closed container.

Store locked up.

Store container tightly closed in freezer

In the case of the use, keep it on the site at a cool place, a good place of the ventilation

(3)Storage condition to avoid

Keep fire away.

Avoid storing in contact with oxidant and strong oxidizing substances.

Keep away from

oxidizer, peroxide, reducing agent, acid, base, acid anhydride, acid chloride

Avoid direct rays of the sun, a shock, friction, an electrostatic electric discharge

(4)Safe container materials

The container of zinc, copper, and aluminum is not used.

8. Exposure Control/Personal Protection

8.1 Control parameters

(1)Administrative levels (Industrial Safety and Health Act)

Administrative levels are not established.

(2)Occupational exposure limits

NMP:1ppm(4mg/m3)(Skin)

(3)DNEL(Derived No Effect Level)

No information available.

(4)PNEC(Predicted No Effect Concentration)

No information available.

8.2 Exposure controls

Do not use and handle hermetically-sealed equipment and appropriate ventilation equipment such as general or local exhaust ventilation etc.

Use local exhaust ventilation when handling.

Emergency shower and eyewash station shall be installed near worksites.

Use explosion-proof electrical / ventilating / lighting equipment

Take precautionary measures against static discharges

8.3 Individual protection measures

(1)Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Organic gas mask

(2)Hand protection

Wear protective gloves.(recommended material:Impermeability and tough protective glove(polyethylene,polypropyrene, latex etc))

(3)Eye/face protection

Wear protective glasses or safety goggles.

(4)Skin and body protection

Wear working clothes with solvent-related long sleeves and safety shoes with antistatic property

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

(1)Appearance

A.Physical state

Liquid

B.Color

Red-brown

(2)Odour

characteristic odor(peculiar odor)

(3)Odour threshold

No information available.

(4)pH

NMP:7.7-8

(5)Melting point/freezing point

EL:-25C

GBL:-44C

PGME:-96C

NMP:-24.4C(101.3kPa)

(6)Initial boiling point and boiling range

EL:154C

GBL:204C

PGME:120C

NMP:202C(760mmHg)

(7)Flash point

36.5°C

(8)Evaporation rate

EL:0.233(butyl acetate=1)

PGME:0.7(butyl acetate=1)

NMP:3(butyl acetate=100)

(9)Flammability (solid, gas)

Not applicable.

(10)Upper/lower flammability or explosive limits

Upper limits 11.4(EL), 12.6vol%(GBL),12vol%(PGME),9.5vol%(NMP)

Lower limits 1.5(EL), 2vol%(GBL),3vol%(PGME),1.3vol%(NMP)

(11)Vapour pressure

EL:2.79hPa(20C),GBL:40Pa(20C),PGME:12.5mmHg(25C),NMP:0.33mmHg(23.2C)

(12)Vapour density

EL:4.1,GBL:3.0,PGME:3.11(air=1),NMP:3.4(air=1)

(13)Specific gravity (Relative density)

about 1.1

(14)Solubility

not soluble(water)

(15) Partition coefficient: n-octanol/water

EL:log Pow=-0.18,GBL:log Pow=-0.64,PGME:logPow=-0.49(estimate value),NMP:logKow=-0.54

(16)Auto-ignition temperature

EL:400C

GBL:455C

PGME:270C

NMP:245C

(17)Decomposition temperature

No information available.

(18)Viscosity

<100mPa.s

(19)Explosive properties

Nothing.

(20)Oxidising properties

Nothing.

9.2 Other information

No information available.

10. Stability and reactivity

10.1 Reactivity

Nothing in particular.

10.2 Chemical stability

This product is considered stable under ordinary storage and handling condition.

Store container tightly closed in freezer

In the case of the use, keep it on the site at a cool place, a good place of the ventilation

10.3 Possibility of hazardous reactions

Nothing in particular.

10.4 Conditions to avoid

Light, fire, spark, heat, high temperature, shock, friction, electrostatic electric discharge, acid, base, oxidizer, reducing agent, zinc, copper, aluminum

10.5 Incompatible materials

Acidic material

Basic material

Oxidizing material

Reducing material

Zinc, Peroxide, Acid anhydride, Acid chloride

10.6 Hazardous decomposition products

Peroxide

Carbon monoxide,Sulfur oxides,Nitrogen oxides,Carbon dioxide

11. Toxicological Information**(1)Acute toxicity**

Product reduced values:

oral rat:LD50 3276mg/kg(Category 5)

skin rabbit:LD50 9336mg/kg(Not classified)

absorption(gas):Not applicable

absorption(vapor):11mg/L(Category 4)

absorption(particulate mist):9mg/L(Not classified)

(2)Skin corrosion/irritation

Category 2:additive(<1%),NMP(<1%)

Category 3:PGME:(60-65%)

Not classified:GBL(5-10%)

---Product:(Category 3)

Component of category 2 in product :1%< <10%

Component of category 3 in product :>10%

(3)Sensitization, respiratory/skin

Respiratory

---Product:(classification not possible)

no data

Skin sensitization

Not classified:additive(<1%),NMP(<1%)

---Product:(classification not possible)

The data is insufficient

(4)Serious eye damage/eye irritation

Category 1:EL(15-20%)

Category 2A:GBL(5-10%),NMP(<1%)

Category 2B:PGME(60-65%),additive(<1%)

Not classified:additive(<1%)

---Product:(Category 1)

Component of category 1 in product :>3%

(5)Germ cell mutagenicity

Not classified:EL(15-20%),GBL(5-10%),PGME(60-65%),additive(<1%),NMP(<1%)

---Product:(classification not possible)

The data is insufficient

(6)Carcinogenicity

Not classified:PGME(60-65%)

---Product:(classification not possible)

The data is insufficient

(7)Reproductive toxicity

Category 1B:NMP(<1%)

Not classified:PGME(60-65%)

---Product:(Category 1B)

Component of category 1B in product :>0.1%

(8)Specific target organ toxicity/single exposure

Category 2:GBL(5-10%)(central nervous system)

Category 3:EL(15-20%),NMP(<1%)(Respiratory tract irritation)

GBL(5-10%),PGME(60-65%)(Narcotic effects)

---Product:(Category 2:central nervous system)

:(Category 3:Narcotic effects)

Component of category 2 in product : >1%

Component of category 3 in product : >20%

(9)Specific target organ toxicity/repeated exposure

Category 1:NMP(<1%)(Inhalation-Marrow,spleen,liver,respiratory organs,adrenal gland,kidney)

Not classified:PGME(60-65%)

---Product:(classification not possible)

Component of category 1 in product : <1%

Component of category 2 in product : <1%

The data of other compounds is insufficient

(10)Aspiration hazard

Category 1:NMP(<1%)

---Product:(classification not possible)

Component of category 1 in product : <10%

The data of other compounds is insufficient

(11)Other hazard(s)

GBL and 4-hydroxy-butyrac acid(GBL hydrolyzed) has anesthetic action and act as sedative to central nervous system.

12. Ecological Information

12.1 Ecotoxicity

(1)Acute(short-term)

Category 2:additive (<1%)

Not classified:EL(15-20%),GBL(5-10%),PGME(60-65%),NMP(<1%)

---Product:(classification not possible)

Component of category 2 in product : <25%

Component of category 2*10 in product : <25%

The data of other compounds is insufficient

(2)Chronic(long-term)

Category 2:additive (<1%)

Not classified:EL(15-20%),GBL(5-10%),PGME(60-65%),NMP(<1%)

---Product:(classification not possible)

Component of category 2 in product : <25%

Component of category 2*10 in product : <25%

The data of other compounds is insufficient

12.2 Persistence and degradability

EL:COD(Mn) 0.38g/g,BOD 1.02g/g

GBL:COD(Mn) 23%, BOD5 87%

PGME:96%(28days)

NMP:BOD5 1300ppm,CODMn 340ppm(NMP 0.1wt% Water solution)

12.3 Bioaccumulative potential

PGME:BCF=3.2(QSAR:predicted value)

12.4 Mobility in soil

NMP:Adsorption to soil and sludge is small.

PGME:Rapid disappearance in soil can be considered.

12.5 Adverse effect to the ozone layer

No information available.

12.6 Other adverse effect(s)

No information available.

13. Disposal considerations

13.1 Waste treatment methods

Dispose of contents/container in accordance with the national/regional/local laws or regulations (a statute and rules).

Implement treatment measures of combustion exhaust as toxic gas (Carbon monoxide, Sulfur oxides, Nitrogen oxides,

Carbon dioxide, Peroxide) is generated during combustion treatment.

Dispose of in an incinerator little by little or consign an industrial waste treatment firm who had been approved by the prefectural governor.

Consign an industrial waste treatment firm after having notified them of the risk, hazard, when you are entrusted with the disposal of waste.

Treat the container including the product and washing liquid as the same

Do not dump into sewers, on the ground or into any body of water(environment)

14. Transport information

14.1 UN number 1866

14.2 UN proper shipping name Resin Solution Flammable

14.3 Transport hazard 3

class(es)

14.4 Packing group 3

14.5 Environmental hazards Not applicable.

14.6 Special precautions for user

No information available.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No information available.

14.8 The Laws and Regulations for transportation in Japan

Land transportation Comply with the provisions of Road Act/Fire Service Act.

Marine transportation Comply with the provisions of Ship Safety Act.

Air transportation Comply with the provisions of Civil Aeronautics Act.

14.9 Specific safety measures and conditions on transport :

Load the product as not to drop or fall or destroy and ensure prevention of the collapse of cargo.

Avoid direct sunlight, load the product so as not to cause damage or corrosion or leakage of the container, and ensure prevention of the collapse of cargo.

Before transportation confirm that there is no damage or corrosion or leakage of the container, load the product as not to drop or fall or destroy, and ensure prevention of the collapse of cargo.

Fix the product so as not to move, fall, shock, friction, etc.

Avoid fire, heat and direct sunlight.

Be careful about water leaks in order to prevent break packing, and avoid rough handling.

At the time of the transportation, carry the emergency response sheet which the actions to be taken by persons concerned in preparation for accidents are written.

Do not transport it with food and feed

Do not load heavy goods on the top of the product

14.10 ERG Guide No.

Not applicable.

15. Regulatory information

We are not able to check up the regulatory information in regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

16. Other Information/References

Date of issue/Date of revision

Date of issue 2014/04/01

Revised item Chapter 1 1.2 Other means of identification

Chapter 2 2.1 GHS Classification

2.2 GHS label elements

Chapter 5 5.2 Special hazards arising from the substance or mixture

Chapter 7 7.1 Precautions for safe handling

Chapter 11 Toxicological Information
Chapter 16 Other Information/References

Reference

- 1)SDS of each materials
- 2)GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) 3th edition
- 3)CHRIP(NITE)
- 4)http://anzeninfo.mhlw.go.jp/anzen_pg/GHS_MSD_FND.aspx(Safe site of the workplace)
- 5)The Montreal Protocol on Substances that Deplete the Ozone Layer
- 6)ESIS(European chemical Substances Information System)
- 7)[http://ncis.nier.go.kr/ncis\(korea\)](http://ncis.nier.go.kr/ncis(korea))
- 8)EPA(Substance registry service)
- 9)http://csnn.cla.gov.tw/content/Substance_home.aspx(Taiwan)
- 10)<http://cciss.cirs-group.com/>(China)

Disclaimer

This SDS is made based on information and data currently available to us. It may be revised and updated when new information becomes available to us.

Although certain danger and hazard are described herein, we can not guarantee that there is no other danger or hazard in or related to the materials. All materials may have unknown danger or hazard and should be used and handled in caution. Subject to user's ordinary use and handling, all remarks and precautions herein are described and it is user's responsibility to implement appropriate safety measures in case of their particular uses. Users should confirm and evaluate the safety of all materials, including its combination with other materials or parts and the suitability of the materials for their purposes on their own responsibilities.

No warranty, express or implied, is made with respect to the materials, including the completeness or accuracy of this information and we assume no liability for any damage resulting from user's use or handling of any materials.