

Safety Data Sheet

【Mixture (For Coating)】

1. Product & Company Information

Product name : **US2000 PART-A**
 (Main agent in solvent-based two-component mixtures)

Product Use For : Metal wear resistance, noise prevention, etc.

Company name : UNICS CO., LTD.

Address : 4-14-31 Kanou, Higashiosaka, Osaka, 578-0901 Japan

Department in charge : Surface Treatment Div., Engineering Dept.

Telephone number : +81-72-968-1166

FAX number : +81-72-966-3233

Emergency : As above

2. Hazards Identification

【GHS Classification】

Flammable liquid	Category 2
Acute toxicity Inhalation(Vapor)	Category 4
Serious eye damage/ eye irritation	Category 2A
Respiratory sensitization	Category 1
Skin sensitization	Category 2
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
Specific target organ systemic toxicity -Single exposure [Category 1]	Respiratory system, Nervous system
Specific target organ systemic toxicity -Repeated exposure [Category 1]	Respiratory tract irritation
Acute aquatic toxicity	Category 3
Chronic aquatic toxicity	Category 3

【GHS Label elements】



【Signal Word】 Danger

【Precautionary statements】

Safety precautions

- Obtain the instruction manual before use.
- Wash hands and body thoroughly after handling.
- Wear protective gloves/protective clothing/eye protection/face protection.

Do not inhale dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

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

First aid measures

If it gets into the eye, flush carefully with water for several minutes. Remove contact lenses if they can be easily removed. Continue rinsing.

If eye irritation persists, seek medical advice/attention.

If exposed or concerned about exposure : Contact a physician.

: Get medical advice/attention.

If feeling unwell, seek medical advice/attention.

Storage

Store at a well-ventilated, cool place.

Keep the product under lock and key.

Disposal

Dispose of contents and containers according to a rule of a local regulations.

Other hazards not applicable to GHS classification

None in particular

3. Composition · Ingredients Information

Single substance or Mixture : Mixture

Composition and content

Substance name	CAS RN	Content (Wt%)	Remarks
Urethane prepolymer	-	59	See Note1 below.
Methylene chlorides	75-09-2	35	
Methyl ethyl ketone	78-93-3	5	
Silicon dioxide	7631-86-9	1	

4. First-aid Measures

- Inhalation : If inhaling vapors, gases, etc., and feeling unwell, move the patient to fresh air and keep at rest in a position comfortable for breathing.
If symptoms do not improve, contact a physician.
- Skin contact : Remove/Take off immediately all contaminated clothing.
Gently wash with plenty of soap and water.
Flush skin with running water or shower and soap.
Get medical attention if you notice any change in appearance, irritation or pain, or if you feel unwell.
- Eye contact : Immediately flush with large amounts of clean running water for at least 15 minutes.
Remove contact lenses if worn and easily removable.
Wash thoroughly, even behind the eyelids.
Seek immediate medical attention.
- Ingestion : If accidentally swallowed, rest and seek medical advice immediately.
- Protection for first -aids : Wear proper protectors (gloves, clothing, goggles etc)
Ventilate the place well.

5. Fire-fighting Measures

- Extinguishing media : Dry chemical, carbon dioxide or foam
- Not recommended for : Straight spray of water

Methods of fire-fighting

Wear proper protectors (fireproof clothing etc)

Move inflammable materials from the area if it can be done without risk.

Use proper extinguishing media.

Fire-fighting from the windward side.

Fire-fighting around the area.

6. Accidental Release Measures

Personal precautions

Wear proper protectors (gloves, clothing, safety goggles, mask, apron, etc).

Ventilate well if handling in a closed environment.

Work in the windward side as much as possible if handling outside.

Keep out the area except authorized people for preventing second disaster.

Prevention

Prepare a fire extinguishing agent, ensuring that there are no potential ignition sources nearby.

Use safe equipment that does not generate sparks..

Environmental precautions

Do not discharge leaked material into tap water, sewer or circulation filtering water supply.
Prevent flowing the leakage into the river.

Methods of Cleaning, Containment • Equipment

Enclose product with sand, soil, sawdust etc. to prevent spilled liquid from spreading, and collect as much as possible in a container. This container must not be sealed. For liquid that could not be recovered, spray neutralizer is sprayed, absorb with rags, paper scraps etc., and store in a lidded container for removal.

7. Handling and Storage

Handling

Handle at well ventilated place.

Seal the container when each use.

Wear proper protectors (protective eyeglasses, rubber gloves, and gas mask) to prevent from attaching the product or putty to skin, mucosa and clothes.

Don't bring the contaminated protectors to the rest area.

Wash hands and body after handling.

Storage

Avoid the direct sunlight. Storage at well ventilated place.

Keep locked to prevent theft. Keep out of reach of children.

8. Exposure controls / Personal protection

Control Concentration

Methylene chlorides : 50ppm

Ethyl methyl ketone : 200ppm

Allowable Concentration

《Methylene chlorides》

JSOH : 50ppm (Time-weighted average concentration 2007 edition)

ACGIH : 50ppm (TLV-TWA 2007 edition)

《Ethyl methyl ketone》

JSOH : 200ppm (Time-weighted average concentration 2007 edition)

ACGIH : 200ppm (TLV-TWA 2007 edition)

ACGIH : 300ppm (TLV-STEL 2007 edition)

(Note) JSOH stands for Japan Society for Occupational Health

ACGIH stands for American Conference of Governmental Industrial Hygienists

Protective equipment

Provide local exhaust ventilation or automated painting machine when handling in a closed environment.

Respiratory protection

Wear protective mask.

Hand protection

Wear gloves made of materials that are impervious to organic solvents or chemicals.

Eye protection

Wear protective goggles.

Skin and body protection

When handling, wear clothing that does not expose the skin directly. The material should be impervious to chemicals.

9. Physical and Chemical properties

- Physical state (20°C) : liquid
- Color : Light yellow
- Odor : Pungent
- pH : N/A
- Viscosity : 2000 mP · s (25°C)
- Density : 1.13 g/cm³ (25°C)
- Boiling point : No information
- Flash point : 2°C (Seta closed cup)
- Vapor pressure : No information
- Solubility In water : Hardly soluble
- Solubility in organic solvent : Soluble in toluene, ethyl acetate, acetone, etc.
- Octanol Water Partition Coefficient : (Methylene chlorides) logPow = 1.25
(Methyl ethyl ketone) logPow = 0.29

10. Stability and Reactivity

- Ignitability : No
- Oxidizability : No
- Autoreactivity, Explosiveness : No
- Dust explosiveness : No
- Others : NA
- Reacts with water to generate heat and carbon dioxide.
- Exothermically reacts with substances that have an active hydrogen group, such as alcohol and amines.
- Polymerization reaction to alkali substances, tertiary amines, etc.

11. Toxicological Information of hazards substance

	Methylene chlorides	Methyl ethyl ketone	Dicyclohexyl methane 4.4Diisocyanate
Acute toxicity Peroral toxicity	Category 4	Category 5	Not classified
Transdermal toxicity	—	Not classified	Not classified
Gas inhalation	Classification not possible (N/A)	—	Classification not possible (N/A)
Vapor inhalation	Not classified	Category 5	Category 1
Skin corrosion/irritation	Category 2	Category 2	Category 1
Eye irritation	Category 2A	Category 2B	Category 1
Respiratory sensitization	N/A	N/A	Insufficient data
Skin sensitization	N/A	Insufficient data	Category 1
Germ-cell mutagenicity	Not classified	Not classified	Insufficient data
Carcinogenicity	Category 2	Not classified	—
Reproductive toxicity	Insufficient data	Not classified	—
Systemic Toxicity (Single exposure)	Category 1 (central nervous system, respiratory organs system) Category 3 (anesthetic action)	Category 1 (central nervous system) Category 2 (kidney)	Category 1 (nerve system, respiratory organs system)
Systemic Toxicity (Repeated exposure)	Category 1 (central nervous system, liver)	Category 1 (central nervous system, peripheral nervous system)	Insufficient data
Aspiration hazards	—	Category 2	—

12. Ecological Information

	Methylene chlorides	Methyl ethyl ketone	Dicyclohexyl methane 4.4Diisocyanate
Aquatic environmental hazards Acute	Category 3	Not classified	Category 1
Chronic	Not classified	Not classified	Category 1

13. Disposal Precautions

In addition to the items related to handling and storage precautions, take careful note of the following items.

Disposal of this product

- Hire an industrial waste disposal company to handle the disposal.
- Dispose of the product in a suitably equipped incinerator.

Disposal of used containers

- Wash and treat after neutralizing with a neutralizing agent.
- Punch holes in empty containers and scrap them so they are not reused for other purposes.

14. Transport Information

Transport precautions

Comply with the section 7(handling and storage) on this sheet.

Prior to transport, check the containers and loading to prevent leakage or turnover, fall and damage in accordance with regulations.

International restriction

Air transportation is governed by IATA and marine transportation by IDMG regulations

UN No : 1866 (RESIN SOLUTION, flammable)

UN Class : 3

Packing group : II

Domestic restriction

Land transport : Comply with the guidance of Fire Defense Law, Industrial Safety and Health Act, and Poisonous Material Control Law if applicable.

Marine transport : Industrial Safety and Health Act, and Poisonous Material Control Law if applicable.

Marine transport : Comply with Law for Safety of Vessels.

Air transport : Comply with Aviation Law.

Specific safety measures and conditions for transport

Material is covered by the Fire Service Act, so it must be transported in containers and with loading methods prescribed by the Act.

Transport in accordance with the Regulations for the Carriage and Storage of Dangerous Goods by Ship based on the Ship Safety Law.

15. Regulatory Information

- Fire Service Act: Class 4 Hazardous material, Petroleum Class 1
Non-water-soluble, Hazard Grade II
- Industrial Safety and Health Act

- Ship Safety Law: Class 3 (Flammable Liquid)

16. Other Information

Reference :

Hazard communication of chemicals based on GHS –Labelling and Safety Data Sheet (SDS)
JIS Z 7253

Notice :

This sheet is based on the newest information we can obtain on the date of issue, but it is not possibly enough. When we get new information about hazards and handling, we will revise this sheet without announcement.

The properties and hazards information of substances on this sheet is common data and we cannot guarantee them.

Mixing with other materials and different usage except we specified must be done by user's responsibility.

This SDS has been prepared based on materials available at this time. The information and assessment of the hazards and toxicity of the product in question are based on information estimated from raw materials and are not necessarily sufficient.

The user is responsible for determining safe handling methods.

Safety Data Sheet

【Mixture (For Coating)】

1. Product & Company Information

Product name : **US 2000 PART-B**
 (Hardener in solvent-based two-component mixtures)

Product Use For : Metal wear resistance, noise prevention, etc.

Company name : UNICS CO., LTD.

Address : 4-14-31 Kanou, Higashiosaka, Osaka, 578-0901 Japan

Department in charge : Surface Treatment Div., Engineering Dept.

Telephone number : +81-72-968-1166

FAX number : +81-72-966-3233

Emergency : As above

2. Hazards Identification

【GHS Classification】

Flammable liquid	Category 2
Acute toxicity Inhalation(Vapor)	Category 4
Serious eye damage/ eye irritation	Category 2A
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
Specific target organ systemic toxicity -Single exposure [Category 1]	Liver, Heart, Kidney, Central nervous system
Specific target organ systemic toxicity -Repeated exposure [Category 1]	Liver, Heart
Acute aquatic toxicity	Category 3
Chronic aquatic toxicity	Category 3

【GHS Label elements】



【Signal Word】 Danger

【Precautionary statements】

Safety precautions

Obtain the instruction manual before use.

Wash hands and body thoroughly after handling.

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

Do not inhale dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

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

First aid measures

If it gets into the eye, flush carefully with water for several minutes. Remove contact lenses if they can be easily removed. Continue rinsing.

If eye irritation persists, seek medical advice/attention.

If exposed or concerned about exposure : Contact a physician.

: Get medical advice/attention.

If feeling unwell, seek medical advice/attention.

Storage

Store at a well-ventilated, cool place.

Keep the product under lock and key.

Disposal

Dispose of contents and containers according to a rule of a local regulations.

Other hazards not applicable to GHS classification

None in particular

3. Composition • Ingredients Information

Single substance or Mixture : Mixture

Composition and content

Substance name	CAS RN	Content (Wt%)	Remarks
Methyl ethyl ketone	78-93-3	56	.
4,4'-Diaminodiphenylmethane	101-77-9	44	

4. First-aid Measures

Inhalation : If inhaling vapors, gases, etc., and feeling unwell, move the patient to fresh air and keep at rest in a position comfortable for breathing.
If symptoms do not improve, contact a physician.

- Skin contact : Remove/Take off immediately all contaminated clothing.
Gently wash with plenty of soap and water.
Flush skin with running water or shower and soap.
Get medical attention if you notice any change in appearance, irritation or pain, or if you feel unwell.
- Eye contact : Immediately flush with large amounts of clean running water for at least 15 minutes.
Remove contact lenses if worn and easily removable.
Wash thoroughly, even behind the eyelids.
Seek immediate medical attention.
- Ingestion : If accidentally swallowed, rest and seek medical advice immediately.
- Protection for first -aids : Wear proper protectors (gloves, clothing, goggles etc)
Ventilate the place well.

5. Fire-fighting Measures

- Extinguishing media : Dry chemical, carbon dioxide or foam
- Not recommended for : Straight spray of water

Methods of fire-fighting

Wear proper protectors (fireproof clothing etc)

Move inflammable materials from the area if it can be done without risk.

Use proper extinguishing media.

Fire-fighting from the windward side.

Fire-fighting around the area.

6. Accidental Release Measures

Personal precautions

Wear proper protectors (gloves, clothing, safety goggles, mask, apron, etc).

Ventilate well if handling in a closed environment.

Work in the windward side as much as possible if handling outside.

Keep out the area except authorized people for preventing second disaster.

Prevention

Prepare a fire extinguishing agent, ensuring that there are no potential ignition sources nearby.

Use safe equipment that does not generate sparks..

Environmental precautions

Do not discharge leaked material into tap water, sewer or circulation filtering water supply.

Prevent flowing the leakage into the river.

Methods of Cleaning, Containment • Equipment

Enclose product with sand, soil, sawdust etc. to prevent spilled liquid from spreading, and collect as much as possible in a container. This container must not be sealed. For liquid that could not be recovered, spray neutralizer is sprayed, absorb with rags, paper scraps etc., and store in a lidded container for removal.

7. Handling and Storage

Handling

Handle at well ventilated place.

Seal the container when each use.

Wear proper protectors (protective eyeglasses, rubber gloves, and gas mask) to prevent from attaching the product or putty to skin, mucosa and clothes.

Don't bring the contaminated protectors to the rest area.

Wash hands and body after handling.

Storage

Avoid the direct sunlight. Storage at well ventilated place.

Keep locked to prevent theft. Keep out of reach of children.

8. Exposure controls / Personal protection

Control Concentration

Methyl ethyl ketone	: 200ppm
4,4'-Diaminodiphenylmethane	: Not set up

Allowable Concentration

《Methyl ethyl ketone》

JSOH : 200ppm (Time-weighted average concentration 2007 edition)

ACGIH : 200ppm (TLV-TWA 2007 edition)

ACGIH : 300ppm (TLV-STEL 2007 edition)

《4,4'-Diaminodiphenylmethane 》

JSOH : 0.4mg/m³ (Skin / Time-weighted average concentration)

ACGIH : 0.1ppm (Skin / TLV-TWA)

(Note) JSOH stands for Japan Society for Occupational Health

ACGIH stands for American Conference of Governmental Industrial Hygienists

Protective equipment

Provide local exhaust ventilation or automated painting machine when handling in a closed environment.

Respiratory protection

Wear protective mask.

Hand protection

Wear gloves made of materials that are impervious to organic solvents or chemicals.

Eye protection

Wear protective goggles.

Skin and body protection

When handling, wear clothing that does not expose the skin directly. The material should be impervious to chemicals.

9. Physical and Chemical properties

- Physical state (20°C) : liquid
- Color : Light yellow
- Odor : Amine-like
- pH : N/A
- Viscosity : $1.9 \text{ mm}^2/\text{s}$ (25°C)
- Density : 0.923 g/cm^3 (25°C)
- Boiling point : No information
- Flash point : 1°C (Seta closed cup)
- Vapor pressure : No information
- Solubility In water : Hardly soluble
- Solubility in organic solvent : Soluble in toluene, monochlorobenzene, acetone, etc.
- Octanol Water Partition Coefficient : (Methyl ethyl ketone) $\log P_{ow} = 0.29$

10. Stability and Reactivity

Reactivity: No data available

Chemical stability: Stable under proper conditions.

Possibility of hazardous reactions: No special reactivity has been reported.

Conditions to avoid: No data available

Incompatible materials: Oxidizing agents

Hazardous decomposition products: Carbon dioxide, Carbon monoxide, Nitrogen oxides (NO_x)

11. Toxicological Information of hazards substance

	Methyl ethyl ketone	4,4'-Diaminodiphenylmethane
Acute toxicity Peroral toxicity	Category 5	Category 4
Transdermal toxicity	Not classified	Not classified
Skin corrosion/irritation	Category 2	Not classified
Eye irritation	Category 2B	Category 2A
Respiratory sensitization	N/A	Insufficient data
Skin sensitization	Insufficient data	Category 1
Germ-cell mutagenicity	Not classified	Category 2
Carcinogenicity	Not classified	Category 1B
Reproductive toxicity	Not classified	Category 2
Systemic Toxicity (Single exposure)	Category 1 (central nervous system) Category 2 (kidney)	Insufficient data
Systemic Toxicity (Repeated exposure)	Category 1 (central nervous system, peripheral nervous system)	Insufficient data
Aspiration hazards	Category 2	Insufficient data

12. Ecological Information

	Methyl ethyl ketone	4,4'-Diaminodiphenylmethane
Aquatic environmental hazards Acute	Not classified	Category 1
Chronic	Not classified	Category 1

13. Disposal Precautions

Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

14. Transport Information

Transport precautions

Comply with the section 7(handling and storage) on this sheet.

Prior to transport, check the containers and loading to prevent leakage or turnover, fall and damage in accordance with regulations.

International restriction

- Air transportation is governed by IATA and marine transportation by IDMG regulations
- UN No : 1992 (FLAMMABLE LIQUID, TOXIC, N.O.S.)
- UN Class : 3
- Packing group : II

Domestic restriction

- Land transport : Comply with the guidance of Fire Defense Law, Industrial Safety and Health Act, and Poisonous Material Control Law if applicable.
- Marine transport : Industrial Safety and Health Act, and Poisonous Material Control Law if applicable.
- Marine transport : Comply with Law for Safety of Vessels.
- Air transport : Comply with Aviation Law.

Specific safety measures and conditions for transport

Material is covered by the Fire Service Act, so it must be transported in containers and with loading methods prescribed by the Act.

Transport in accordance with the Regulations for the Carriage and Storage of Dangerous Goods by Ship based on the Ship Safety Law.

15. Regulatory Information

- Fire Service Act: Class 4 Hazardous material, Petroleum Class 1
Non-water-soluble, Hazard Grade II
- Industrial Safety and Health Act
- Ship Safety Law: Class 3 (Flammable Liquid)

16. Other Information

Reference :

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