Ministry of Employment and Labor	Material Safety Data Sheet	Industrial Accident Prevention Korea Occupational Safety and Health Agency (KOSHA)

AA00569-0000000022

※ Please make sure to use it with the MSDS number applied.

1. PRODUCT AND COMPANY IDENTIFICATION

A. Product Name	DICYANDIAMIDE
B. Recommended Use and Restrictions on Use	
Recommended Use	Electronic Chemicals, Coating Additives
Restrictions on Use	No data available
C. Supplier Information (For imports, provide local supplier information for emergency contact)	
Company Name	GloryGlobal Co., Ltd.
Address	Room 1004, Seoul-Technopark, inside Seoul Tech, 232, Gongneung-ro, Nowon-gu, Seoul, Korea 01811
Emergency Contact Number	82-2-6223-0862
D. Additional Manufacturer/Supplier Information	
No data available	

2. Hazards identification

A. Hazard Classification

Skin Corrosion/Irritation: Category 2

B. Warning Label Elements (including precautionary statements)

Pictogram

Signal word: Warning

Hazard Statements:

H315 : Causes skin irritation

H319 : Causes serious eye irritation

H335 : May cause respiratory irritation

Precautionary Statements

Storage	P403+P233 : Store in a well-ventilated place. Keep container tightly closed.
Disposal	P501 : Dispose of contents/container in accordance with local/regional/national/international regulations.
Prevention	P264 : Wash thoroughly after handling.
	P280 : P280: Wear protective gloves/protective clothing/eye protection/face protection.
Response	P302+P352 : IF ON SKIN: Wash with plenty of water/...
	P332+P313 : If skin irritation occurs: Get medical advice/attention.
	P321 : Specific treatment (see ... on this label).
	P362+P364 : Take off contaminated clothing and wash it before reuse.

C. Other Hazards Not Otherwise Classified (e.g., Dust Explosion Hazard)

Health: No data available

Fire: No data available

Reactivity: No data available

D. Results of PBT and vPvB Assessment

PBT (Persistent, Bioaccumulative, and Toxic substances)	No data available
vPvB (very Persistent and very Bioaccumulative substances)	No data available

3. Composition / Information on Ingredients

Chemical Name	Synonyms (Common Name / Trade Name)	CAS No.	Concentration(%)
DICYANDIAMIDE	CYANOGUANIDINE	461-58-5	99.5
Water	Water	7732-18-5	0.5

4. First Aid Measures

A. If in Eyes

Immediately rinse cautiously with water for at least 20 minutes.

If eye irritation persists, seek medical advice/attention.

Obtain emergency medical treatment.

B. If on Skin

In case of minor skin contact, prevent the substance from spreading to uncontaminated areas.

Obtain emergency medical treatment.

If the substance is hot, cool the affected area by immersing or flushing with plenty of cold water to remove heat.

Immediately rinse skin with plenty of water for at least 20 minutes after contact.

Remove contaminated clothing and isolate the contaminated area.

Take off contaminated clothing.

If skin irritation occurs, seek medical advice/attention.

C. If Inhaled

Keep warm and at rest.

Move the person to fresh air.

If breathing is difficult, provide oxygen.

If not breathing, perform artificial respiration.

Seek medical advice/attention and emergency medical treatment.

D. If Swallowed

Rinse mouth with water.

Obtain emergency medical treatment.

May cause nausea and vomiting, but do not induce vomiting.

E. Other Medical Advice

Ensure medical personnel are aware of the substance involved and take appropriate precautions.

5. Firefighting Measures

A. Suitable (and Unsuitable) Extinguishing Media

Use alcohol-resistant foam, carbon dioxide, or water spray for fires involving this material.

For smothering fires, use dry sand or earth.

B. Specific Hazards Arising from the Chemical

Containers may explode when heated.

Non-flammable: the material itself does not burn but may decompose upon heating to release corrosive and/or toxic fumes.

Some portions may burn but are not easily ignited.

During combustion or thermal decomposition, irritating and highly toxic gases may be released.

C. Special Protective Equipment and Precautions for Firefighters

Wear appropriate protective equipment to prevent contact with skin and eyes.

Dig ditches to contain firefighting water and prevent dispersion of the material.

Be aware that the material may be transported in molten form.

If safe to do so, move containers away from the fire area.

Fight fire from a safe distance and maintain a secure perimeter.

In the case of large tank fires, use unmanned firefighting equipment. If not possible, evacuate the area and allow the fire to burn out.

Cool containers with large volumes of water even after the fire has been extinguished.

If a high-pitched noise is heard from the pressure relief device or the tank shows discoloration, evacuate immediately.

Extinguish tank fires from the maximum distance or use unmanned equipment.

Withdraw from tanks engulfed in flames.

6. Accidental Release Measures

A. Personal Precautions, Protective Equipment, and Emergency Procedures

Do not breathe dust.

Eliminate all sources of ignition.

Ensure adequate ventilation.

Wipe up spills immediately and follow protective equipment and preventive measures.

Stop the leak if it is not dangerous to do so.

Do not touch damaged containers or spilled material without appropriate protective clothing.

Cover with plastic sheeting to prevent spreading.

Pay attention to incompatible materials and conditions to avoid.

Use rope or barricades to isolate the spill area.

B. Environmental Precautions

Prevent entry into waterways, sewers, basements, or confined spaces.

C. Methods and Materials for Containment and Cleaning Up

Avoid creating dust.

Absorb spilled material with inert material (e.g., dry sand or earth) and place it in a chemical waste container.

Absorb liquids and wash the contaminated area with detergent and water.

7. Handling and Storage

A. Precautions for Safe Handling

Follow procedures under engineering controls and personal protective equipment.

Even after containers are emptied, residue may remain; follow all MSDS/label precautions.

Avoid prolonged or repeated contact with eyes and skin.

Wash thoroughly after handling.

Mechanical exhaust ventilation is required.

Avoid inhalation.

Keep away from sources of ignition, heat, and open flame.

B. Conditions for Safe Storage (including any incompatibilities)

Store in a cool place.

Keep containers tightly sealed in a dry, well-ventilated area.

Store away from heat, sparks, and open flame.

Avoid ignition sources and direct sunlight.

Incompatible with strong acids, strong bases, and strong oxidizers. Storage areas should be properly classified and equipped.

Empty drums should be completely drained, properly sealed, and returned to drum reconditioners or properly disposed of immediately.

8. Exposure Controls / Personal Protection

A. Exposure Limits

Domestic Regulations	Not available
ACGIH	Not available
Biological Exposure Indices	Not available
Other Exposure Limits	Not available

B. Appropriate Engineering Controls

Install an eye wash station and a safety shower in facilities where this material is stored or used.

C. Personal Protective Equipment

Respiratory Protection	Wear respirators certified by the Korea Occupational Safety and Health Agency (KOSHA) suitable for the physicochemical characteristics of the particulate matter. For particulate matter, the following respiratory protective equipment is recommended: - Filtering facepiece respirator or air-purifying respirator with high-efficiency particulate filter, or Powered air-purifying respirator (PAPR) with filters for dust, mist, and fumes. In oxygen-deficient environments (<19.6%), wear a supplied-air respirator or self-contained breathing apparatus (SCBA).
Eye Protection	Wear ventilated safety goggles to protect against particulate matter that may cause irritation or other health hazards. Ensure emergency washing facilities (such as eye wash stations and safety showers) are readily accessible in the work area.
Hand Protection	Wear protective gloves made of materials suitable for the physical and chemical properties of the substance.
Body Protection	Wear protective clothing made of materials appropriate for the physical and chemical characteristics of the substance.
Other Precautions	Smoking, drinking, and eating are prohibited in the workplace. Wash thoroughly after handling the material.

9. Physical and Chemical Properties

Component	Classification		Content
DICYANDIAMIDE	A. Appearance (Physical state, color, etc.)	Physical State	Solid (crystalline powder)
		Color	White
	B. Odor		Odorless
	C. Odor Threshold		Not available
	D. pH		Not available
	E. Melting/Freezing Point		211 ℃
	F. Initial Boiling Point and Boiling Range		252 ℃
	G. Flash point		Non-flammable
	H. Evaporation rate		Not available
	I. Flammability (solid, gas)		Not available
	J. Upper/lower flammability or explosive limits		- / - (Non-flammable)
	K. Vapor pressure		0.0045 Pa (<= 0.0045 (100 ℃))
	L. Solubility		41300 ㎎/ℓ (@ 25 ℃)
	M. Vapor density		2.9
	N. Specific gravity		1.4 (25℃)
	O. n-Octanol/water partition coefficient		-1.15 (Log Kow)

	P. Auto-ignition temperature	Non-flammable
	Q. Decomposition temperature	Not available
	R. Viscosity	Not available
	S. Molecular weight	84,1

10. Stability and Reactivity

A. Chemical stability and possibility of hazardous reactions

Container may explode when heated.

Some parts may burn, but are not easily ignited.

Non-flammable; the substance itself does not burn but may decompose upon heating to produce corrosive/toxic fumes.

Irritating, corrosive, and toxic gases may be emitted during fire.

B. Conditions to avoid (e.g., static discharge, shock, vibration, etc.)

Heat, sparks, open flames, and other ignition sources.

C. Incompatible materials

Strong oxidizing agents, flammable materials, reducing agents.

D. Hazardous decomposition products

Carbon oxides, nitrogen oxides.

Irritating and highly toxic gases may be released during thermal decomposition or combustion.

Corrosive/toxic fumes.

11. Information on Likely Routes of Exposure

A. Information on Likely Routes of Exposure:

Ferrous Ammonium Sulfate Hexahydrate	Not available

B. Health Hazard Information:

Acute toxicity	Oral	DICYANDIAMIDE	LD50 >30000 ㎎/㎏ Test Species : Rat
	Dermal	DICYANDIAMIDE	LD50 >10000 ㎎/㎏ Test Species : Rabbit
	Inhalation	DICYANDIAMIDE	Not available
Skin corrosion/irritation		DICYANDIAMIDE	Slightly irritating to guinea pigs.
Serious eye damage/eye irritation		DICYANDIAMIDE	Slightly irritating to guinea pig skin.
Respiratory sensitization		DICYANDIAMIDE	Not available
Skin sensitization		DICYANDIAMIDE	No sensitizing potential observed in guinea pigs.

Carcinogenicity	IARC	DICYANDIAMIDE	Not available
	NTP	DICYANDIAMIDE	Not available
	OSHA	DICYANDIAMIDE	Not available
	ACGIH	DICYANDIAMIDE	Not available
	Occupational Safety and Health Act (of Korea)	DICYANDIAMIDE	Not available
	Public Notice by the Ministry of Employment and Labor (MOEL)	DICYANDIAMIDE	Not available
	EU CLP	DICYANDIAMIDE	Not available
Germ cell mutagenicity		DICYANDIAMIDE	In vitro studies: Bacterial test according to OECD TG 471 and TG 472 (conducted under GLP): Negative result. OECD TG 473 (in vitro non-bacterial test): Negative result.
Reproductive toxicity		DICYANDIAMIDE	No reproductive toxicity observed. Test method: OECD TG 422. NOAEL (No Observed Adverse Effect Level): 1,000 mg/kg/day (SIDS).
Specific target organ toxicity – single exposure		DICYANDIAMIDE	Not available
Specific target organ toxicity – repeated exposure		DICYANDIAMIDE	According to OECD TG 422 results, the test substance showed no chronic effects or impact on body weight. Organ weights and epididymal weights were similar across all groups. NOAEL: 1,000 mg/kg/day.
Aspiration hazard		DICYANDIAMIDE	Not available
Other adverse effects		DICYANDIAMIDE	Not available

12. Ecological Information

A. Ecotoxicity

Fish	DICYANDIAMIDE	LC50 > 100 ㎎/ℓ 96 hr Oryzias latipes
Crustacea	DICYANDIAMIDE	EC50 > 1000 ㎎/ℓ 48 hr Daphnia magna(OECD TG 202)
Algae	DICYANDIAMIDE	EC50 935 ㎎/ℓ 72 hr Selenastrum capricornutum(OECD TG 201)

B. Persistence and degradability

Persistence	DICYANDIAMIDE	-1.15 log Kow
Degradability	DICYANDIAMIDE	Not available

C. Bioaccumulative potential

Bioaccumulative	DICYANDIAMIDE	≤ 3.1 (Cyprinus carpio)
Biodegradability	DICYANDIAMIDE	0 (%) 28 day (This substance is not readily biodegradable under aerobic condition within 28 days)

D. Mobility in soil

Ferrous Ammonium Sulfate Hexahydrate	Not available

E. Other adverse effects

Ferrous Ammonium Sulfate Hexahydrate	Not available

13. Disposal Considerations

A. Disposal Considerations

Dispose of waste in accordance with applicable local regulations.

Dissolve or mix the material with flammable solvents and incinerate in a chemical incinerator equipped with afterburner and scrubber.

B. Precautions for Disposal (including disposal of contaminated containers and packaging)

Not available

14. Transport Information

A. UN No.

No information available

B. Proper Shipping Name (UN)

Not applicable

C. Hazard Class in Transportation

Not applicable

D. Packing Group (if applicable)

Not applicable

E. Marine Pollutant (Applicable or Not)

Not applicable

F. Special Precautions or Safety Measures Necessary for Users or Transport Vehicles

Emergency measures in case of fire:

Not applicable

Emergency measures in case of spillage:

Not applicable

15. Regulatory Information

A. Regulations under the Occupational Safety and Health Act

Managed hazardous substance (Iron and its compounds)

B. Regulations under the Chemical Control Act

Not applicable

C. Regulations under the Hazardous Materials Safety Control Act

Not applicable

D. Regulations under the Waste Management Act

Designated waste

E. Other Domestic and International Regulations

Domestic regulations:

Other domestic regulations	Not applicable

Foreign Regulations

U.S. Regulatory Information(OSHA)	Not applicable
U.S. Regulatory Information(CERCLA)	Not applicable
U.S. Regulatory Information(EPCRA 302)	Not applicable
U.S. Regulatory Information(EPCRA 304)	Not applicable
U.S. Regulatory Information(EPCRA 313)	Not applicable
U.S. Regulatory Information (Rotterdam Convention Substances)	Not applicable
U.S. Regulatory Information (Stockholm Convention Substances)	Not applicable
U.S. Regulatory Information (Montreal Protocol Substances)	Not applicable
EU Classification Information (Final Classification Results)	Not applicable
EU Classification Information (Hazard Statements)	Not applicable
EU Classification Information (Precautionary Statements)	Not applicable

16. Other Information

A. Source of Data

ChemIDplus(Molecular Weight)

ChemIDplus(Solubility)

ECHA(Color)

HSDB(Odor)

HSDS(Specific Gravity)

ICSC(Melting/Freezing Point)

ICSC(Physical Appearance)

ICSC(Upper/Lower Flammability or Explosion Limits)

ICSC(Flash Point)

ICSC(Auto-ignition Temperature)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(Oral toxicity)

International Uniform ChemicaL Information Database(IUCLID)(http://ecb.jrc.it/esis)(Bioaccumulation)

National Library of Medicine/Hazardous Substances Data Bank(NLM/HSDB)(http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?

HSDB)(n-Octanol/Water Partition Coefficient (Kow))

National Library of Medicine/Hazardous Substances Data Bank(NLM/HSDB)(http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB)(Persistence)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/) (Skin sensitization)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Crustaceans)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Oral toxicity)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Bioaccumulation)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Biodegradability)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Reproductive toxicity)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Germ cell mutagenicity)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Serious eye damage or irritation)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Algae)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Vapor pressure)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Initial boiling point and boiling range)

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Specific target organ toxicity (repeated exposure))

OECD Screening Information Data Set(http://cs3-hq.oecd.org/scripts/hpv/)(Skin corrosion or irritation)

SIDS(Fish)

The Chemical Database, The Department of Chemistry at the University of Akron(http://ull.chemistry.uakron.edu/erd)

Calculated value based on molecular weight and the average molecular weight of air(Vapor density)

B. Date of first issue

2022-01-01

C. Number of revisions and Date of last revision

Number of revisions :	No data available	Date of last revision :	2024-02-26

D. Others

No data available