Safety Data Sheet

1. Product and company identification

A. Product name: GOLD POTASSIUM CYANIDE (KAU(CN)2)

B. Recommended use and restriction on use

○ General use : Material for gold plating

○ Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information: HEESUNG METAL LTD.

Company name: HEESUNG METAL LTD.

Address: #548-1, Kachua-Dong, Seo-Ku, Incheon, Korea

Telephone number: 82-32-570-1600

Fax number: 82-32-581-4029

Dept.: Environment & Safety Team A person in charge: Kang-il Lee(Manager of MSDS)

2. Hazards identification

A. Hazard.Risk Classification

○ Physical Hazards : Not classified

○ Health Hazards : Acute toxicity(Oral) Category 2

Acute toxicity(Dermal) Category 1

Acute toxicity(inhalation) Category 2

○ Environmental Hazards Acute aquatic toxicity Category 1

Chronic aquatic toxicity Category 1

B. Label elements including precautionary statements

○ Symbol:

○ Signal Word: Danger

○ Hazard.Risk Statement Fatal if swallowed

Fatal in contact with skin

Fatal if inhaled

Very toxic to aquatic life

Very toxic to aquatic life with long lasting effects

○ Precautionary Statement

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

Wash hands thoroughly after handling.

Do not rub on eyes, skin, clothes.

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

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

Use it only outdoors or in a well-ventilated area.

Wear respiratory protection.

Avoid releasing to the environment.

Response : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

If you need to take detoxicant, you should do specific treatment with reference to first aid.

Remove/Take off immediately all contaminated clothing.

IF ON SKIN: Gently wash with plenty of soap and water.

Wash contaminated clothing before reuse.

Immediately call a POISON CENTER or doctor/physician.

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

Collect spillage.

Storage : Store it in sealed container.

Store in a well-ventilated place. Keep container tightly closed.

Disposal : Dispose of contents/container in accordance with local/regional/national/international regulation.

C. Other Hazard . Risk which are not included in the classification criteria

Health: 3

Flammability: 0

Reactivity: 0

3. Composition/Information on ingredients

Chemical Name	Other name	CAS No. or Other identification number	Content(%)
GOLD POTASSIUM CYANIDE	POTASSIUM CYANOAURITE	13967-50-5, KE-29096	100

4. First aid measures

A. Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes.

Get medical attention immediately.

B. Skin contact

Remove contaminated clothing, shoes.

Flush skin with plenty of water and soap for at least 15 minute

Contaminated clothing and shoes laundry and dry thoroughly before reuse.

Take the necessary medical attention.

C. Inhalation

Get medical attention immediately.

Remove victim to fresh air and keep at rest.

D. Ingestion

If swallowed or inhaled, do not conduct mouth-to-mouth artificial respiration and use appropriate respiratory protective equipment.

Get medical attention immediately.

E. Indication of immediate medical attention and notes for physician

If ingested, consider stomach pump, administer activated charcoal slurry and defecation.

5. Fire-Fighting measures

A. Suitable (Unsuitable) extinguishing media

○ Suitable extinguishing media :

Powder foam, Carbon dioxide, Water, Alcohol resistant foam, Dry sand

○ Unsuitable extinguishing media :

Direct water stream

B. Specific hazards arising from the chemical

○ Fire/Explosion Hazards :

Irritating, corrosive or toxic gases may occur by fire.

Substance itself does not Burn but Decompose when heated may cause corrosive/toxic fume.

C. Special protective equipment and precautions for fire-fighters

: Use regular foam or spray fine water.

May reacts violently with water, and releases combustible/corrosive/toxic gas.

Move containers from fire area, if you can do without the risk.

Make sure you use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Extinguish as far as possible from the fire or use a unattended and water devices in case of tank fire.

Water used to extinguish fire should not enter drainage systems, take action not to be scattered.

6.Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

Do not touch spilled material.

Keep unauthorized people away, isolate hazard area and deny entry.

Stop leak if you can do it without risk.

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Please note incompatible materials and conditions to avoid.

B. Environmental precautions and protective procedures

: A leak is corrosive/toxic and may cause contamination.

Prevent runoff and contact with waterways, drains or sewers.

C. Methods and materials for containment and cleaning up

○ Small leak :

Absorb for use sand or other non-combustible material.

Collect spilled material in appropriate container for disposal.

Move container to safe area from the leak area.

○ Large leak :

large spills : dike for later disposal.

Keep unauthorized people away, isolate hazard area and deny entry.

7. Handling and storage

A. Precautions for safe handling:

Wear appropriate chemical resistant glove, safety glasses.

Ensure adequate ventilation.

Keep sealed when not in use.

Do not ingest and inhale.

B. Conditions for safe storage (including any incompatibilities):

Keep container thoroughly closed

Avoid contact with incompatible materials.

8. Exposure controls & personal protection

A. Control parameters (e.g. occupational exposure limit values, biological limit values)

○ Exposure limit under ISHA : Not available

○ OSHA : Not available

○ NIOSH(10 hour) : Not available

○ ACGIH TLV : Not available

○ Biological limit values : Not available

B. Appropriate engineering controls

: If the material has a risk of explosion, Install explosion-proof equipment in the workplace ventilation.

C. Personal protective equipment

○ Respiratory protection : Wear Korea Occupational Safety and Health Agency authorized respirator.

○ Eye protection : Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

The workplace should be equipped with an emergency shower and eye-rinsing facility.

○ Hand protection : Wear appropriate chemical resistant glove.

○ Body protection : Wear appropriate chemical resistant protective clothing.

9. Physical and chemical properties

Category	GOLD POTASSIUM CYANIDE
A. Appearance	Colorless solid
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not applicable
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available

L. Solubility	Slightly soluble
M. Vapour density	3.452g/cm3(25℃)
N. Specific gravity	3.45
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	288.1

10. Stability and reactivity

A. Chemical stability: Stable at room temperature and atmospheric pressure.

B. Possibility of hazardous reactions:

Cyanide in the air reacts with carbon dioxide, liberating hydrogen cyanide toxic gases.

Contact with metal can cause flammable hydrogen gas.

C. Conditions to avoid (e.g. static discharge, shock or vibration, etc):

Avoid contact with heat, spark, open flame or other sources of ignition.

Avoid the formation and build up of dust.

Store away from water and sewer.

D. Incompatible materials:

Metal

E. Hazardous decomposition products:

Corrosive, toxic gases etc.

11. Toxicological information

A. Information on the likely routes of exposure

○ (Respiratory tracts) : May be harmful if inhaled

May cause respiratory tract irritation

○ (Oral) : Harmful if swallowed

○ (Skin) : May be harmful if absorbed through skin

May cause skin irritation

○ (Eye) : May cause eye irritation

B. Health hazards information

○ Acute toxicity:

- Oral : Classified Acute toxicity Category 2 under Toxic Chemical Control Law
- Dermal : Classified Acute toxicity Category 1 under Toxic Chemical Control Law
- Inhalation : Classified Acute toxicity Category 2 under Toxic Chemical Control Law

○ Skin corrosion/irritation:	"Classification not possible" as there is no data within the range of designated harmfulness
○ Serious eye damage/irritation:	"Classification not possible" as there is no data within the range of designated harmfulness
○ Respiratory sensitization:	"Classification not possible" as there is no data within the range of designated harmfulness
○ Skin sensitization:	"Classification not possible" as there is no data within the range of designated harmfulness
○ Carcinogenicity:	"Classification not possible" as there is no data within the range of designated harmfulness
○ Germ cell mutagenicity:	"Classification not possible" as there is no data within the range of designated harmfulness
○ Reproductive toxicity:	"Classification not possible" as there is no data within the range of designated harmfulness

○ Specific target organ toxicity (single exposure):

"Classification not possible" as there is no data within the range of designated harmfulness

○ Specific target organ toxicity (repeated exposure):

"Classification not possible" as there is no data within the range of designated harmfulness

○ Aspiration hazard:	"Classification not possible" as there is no data within the range of designated harmfulness

C. Numerical value for toxicity(Estimate of Acute toxicity etc.) : Not available

12. Ecological information

A. Aquatic and terrestrial ecotoxicity

○ Fish : Classified Acute aquatic toxicity Category 1 under Toxic Chemical Control Law

○ Crustaceans :

Classified Acute aquatic toxicity Category 1 under Toxic Chemical Control Law

○ Algae : Classified Acute aquatic toxicity Category 1 under Toxic Chemical Control Law

B. Persistence and degradability

○ Persistence :

Classified Chronic aquatic toxicity Category 1 under Toxic Chemical Control Law

○ Degradability :

Classified Chronic aquatic toxicity Category 1 under Toxic Chemical Control Law

C. Bioaccumulative potential

○ Biodegration :

Classified Chronic aquatic toxicity Category 1 under Toxic Chemical Control Law

○ Bioaccumulative potential :

Classified Chronic aquatic toxicity Category 1 under Toxic Chemical Control Law

D. Mobility in soil: Not available

E. Other adverse effects:

Not available

13. Disposal considerations

A. Disposal method

: Dispose of waste in accordance with all applicable laws and regulations

Dispose of waste using one of the following method.

(1) Dispose by neutralization/hydrolysis/oxidation/reduction

(2) Dispose by high temperature incineration or melting process

(3) Waste solidification

B. Disposal precaution

: If the substance is specified on the Wastes Management Act, consider precautions stated on the regulation.

14. Transport information

A. UN number: 1588

B. UN proper shipping name: (CYANIDES,INORGANIC,SOLID,N.O.S)

C. Transport hazard class: 6.1

D. Packing group: 1

E. Marine pollutant: Not available

F. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises

○ EmS FIRE SCHEDULE : F-A

○ EmS SPILLAGE SCHEDULE : S-A

15. REGULATORY INFORMATION

A. Industrial Safety and Health Act:	Not available
B. Toxic Chemical Control Act:	Toxic substance(97-1-90)
C. Dangerous Material Safety Control Act:	Not available
D. Wastes Management Act:	Designated waste

E. Other requirements in domestic and other countries

○ POPs Management Law :	Not applicable
○ Information of EU Classification	
- Classification :	Not available
- Risk Phrases :	Not available
- Safety Phrase :	Not available
○ U.S. Federal regulations	
- OSHA PROCESS SAFETY (29CFR1910.119):	Not applicable
- CERCLA Section 103 (40CFR302.4):	Not applicable
- EPCRA Section 302 (40CFR355.30):	Not applicable
- EPCRA Section 304 (40CFR355.40):	Not applicable
- EPCRA Section 313 (40CFR372.65):	Not applicable
○ Rotterdam Convention listed ingredients :	Not applicable
○ Stockholm Convention listed ingredients :	Not applicable
○ Montreal Protocol listed ingredients :	Not applicable

16. Other information

A. Information source and references :

1. Hazardous Substances Data Bank (HSDB)
2. National Library of Medicine(NLM)
3. Chemical Carcinogenesis Research Information System (CCRIS)
4. The Chemical Database, The Department of Chemistry at the University of Akron
5. Chemicals the Screening Information Dataset (SIDS)
6. International Programme on Chemical Safety(IPCS)
7. International Chemical Safety Cards(ICSC)
8. ECB-ESIS(European chemical Substances Information System)
9. International Uniform Chemical Information Database(IUCLID)
10. NITE: National Institute of Technology and Evaluation
11. IARC: monographs on the evaluation of the carcinogenic risk of chemical to humans
12. U.S. Enviromental Protection Agency(EPA): ECOTOX(ECOTOXicology) database

13. NCIS: National Chemicals Information System
14. Korea dangerous material inventory management system – National Emergency Management Agency
15. Korea occupational Safety & Health Agency MSDS
16. UNECE – Globally Harmonized System of Classification and Labelling of Chemicals(GHS)
17. Chemical Risk Information Platform(CHRIP)
18. Genetic Toxicology Date Bank(GENE-TOX)
19. Integrated Risk Information System(IRIS)
20. European Chemical Substances Information System(ESIS)
21. Concise International Chemical Assessment Documents (CICADs)
22. Environmental Health Criteria Monographs (EHCs)
23. Health and Safety Guides (HSGs)
24. Agency for Toxic Substances and Disease Registry(ATSDR)

B. Issuing date : February 19, 2016

C. Revision number and date : 1st, February 19, 2016

D. Others

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