1. 1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

1.1 Product Identifier

Denomination	GOLD POTASSIUM CYANIDE (III)
C.A.S. Registry Number	14263-59-3
EINECS Number	238-145-9
Molecolar Weight	340,0
Formula Bruta	$[KAu(CN)_4]$
Trade Name	Sale doppio AU-K 58%

1.2 Substance or Mixture Identified pertinent uses and suggested uses

Galvanic uses

1.3 Safety Data Sheet supplier information

EU market introducing responsible

Name	FAGGI ENRICO S.P.A.
Address	Via Majorana, 101/103 50019 Sesto Fiorentino FI
Telephone number	055311861
Fax number	055311791
Qualified person responsible for SDS	lorenzo.magaldi@faggi.it

1.4 Emergency Telephone Number: Tel. 0557947819 Centro Antiveleni di Firenze

1.5 Registry number

For this product is not available a registration number as the annual produced or imported quantity is below one ton.

2. 2. HAZARDS IDENTIFICATION

2.1 Mixture classification according to Reg. (CE) n. 1272/2008 :

Hazard Classes	Categories Codes	Hazard codes
Met. Corr.	1	H290
Acute Tox	2	H300
Acute Tox	1	H310
Skin Irr	2	H315
Eye Dam	1	H318
Acute Tox	2	H330
Hazardous for Aquatic Environmental Acute	1	H400
Hazardous for Aquatic Environmental Cronic	1	H410

2.2 Label elements :

Pictograms:

Advices	**HAZARD**	
Hazard advices	**H290**	May be corrosive to metals
	H300	Lethal if swallowed
	H310	Lethal by skin contact
	H315	Causes skin irritation.
	H318	Causes serious eye damage.
	H330	Lethal if Inhaled
	H410	Highly toxic for aquatic organisms with long terms effects
	EUH032	By contact with acids releases high toxic gas
Safety advices	**P270**	Do not dispose into environment
	P273	Avoid breathing dust / fume / gas and / mist / vapors / spray
	P280	Wear protective gloves / protective clothing. Protect eyes / face.
	P310	IF SWALLOWED: Immediately call a poison control center or doctor
	P302+P3352	IF ON SKIN: Wash with plenty of water and soap
	P403 + P233	Keep the container well sealed and in ventilated place

More information

- **Results of PBT and vPvB ev.**

The hydrocyanic acid can lead to all levels of poisoning.
Under the action of acids (including carbon dioxide) is released hydrocyanic acid, which is flammable and together with the air can form explosive gas mixtures.
Avoid contact with acids, air humidity, water.
PBT : not applicable
vPvB : not applicable

3. 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance Esachloroplatinic Acid, Solid Salt 40%

CAS No : 13967-50-5
EINECS No. 200-821-6
CE No. :
IUPAC No.

4. MISURE DI PRIMO SOCCORSO

4.1 First aid measures

Inhalation — In case of formation of aerosols, mists, dusts or fumes can inhalation. No mouth-to-mouth or mouth-nose. Use artificial respiration bag or respirator. Risk of poisoning. Keep respiratory tract. In case of shortness of breath, give oxygen. Call a physician immediately for emergency room (keyword: poisoning with cyanide / prussic acid).

Ingestion — Rinse mouth. Is immediately drink plenty of water. Induce vomiting. Call a physician immediately for emergency room
(Keyword: poisoning with cyanide / hydrocyanic acid)

Skin contact	If the skin dry and without injury is in contact with dry sodium cyanide or potassium, you have not so far observed cyanide poisoning. After contact with skin, wash with soap and water. With symptoms of intoxication alarm the emergency doctor immediately (keyword: cyanide intoxication / hydrogen cyanide).
Eye contact	The use of special cleaning solutions with high buffering capacity (b.p. solution of borate buffer, diftoterine etc.) Are recommended as part of first aid measures. Keeping the eye open, thoroughly rinse immediately with plenty of water for at least 10 minutes. With symptoms of intoxication alarm the emergency doctor immediately (keyword: intoxication with cyanide / hydrocyanic acid)

Recommendations:

- **Need to consult immediately a doctor** YES
- **Possibility of delayed effects after exposure** YES
- **Move the exposed individual from exposure place to outdoor** YES
- **Remove individual's clothes and shoes** YES
- **Contaminated clothes handling** With gloves
- **For first aid responders, wear IPD** YES

4.2 Most important symptoms and effects, both acute and delayed

Possible signs of poisoning: It seems appropriate to differentiate between two stages:
1. Slight poisoning
2. Severe poisoning

The following symptoms do not provide reliable information about prognosis.
Symptoms of central nervous system
Early stage: headache, dizziness, drowsiness, nausea.
advanced stage: convulsions, coma.
pulmonary symptoms
Early stage: dyspnea, tachypnea.
advanced stage: hypoventilation, Cheyne-Stokes respiration, apnea
cardiovascular symptoms
Early stage: Hypertonia, arrhythmia sinus node, AV nodal arrhythmia, bradycardia.
advanced stage: tachycardia, complex arrhythmias, cardiac arrest.
skin symptoms
Early stage: Colourful red.
Advanced stage: cyanosis.
Effect on the metabolism: to pH 7.1 by lactate acidosis and lactate levels up to 17 mm / liter have been described.

4.3 Indication of any immediate medical attention

Therapy: Preventing the absorption and guarantee the vital functions, adhering strictly to self-protection measures. Rapid treatment with antidotes can save lives and has previously about elimination of the poison.
Treatment: Mild intoxication. artificial respiration with 100% oxygen. Depending on the symptoms and the clinical picture requires meticulous examination of reports, symptomatic treatment for pulmonary edema prophylaxis and diagnostics (lung X-rays).
Therapy with antidote: for example administration of sodium thiosulfate 12.5 g - 100-500 mg / kg intravenous, according to the clinical finding and symptoms. Warning! The assay is valid for

a 70 kg adult. Each person poisoned by cyanide must be monitored continuously for many hours even if the patient feels well. This will ensure that it will not occur again symptoms or they remain in the background.
Therapy: severe intoxication.
Artificial respiration with oxygen. immediate administration of antidote.
The medicines listed below may be used for the therapy with antidote:
Overall trainer
1. Administer hydroxocobalamin (Cyanokit®) 5g intravenous (70 mg / kg for adults) infusion for a period of 20-30 minutes. This dosage may be repeated, according to the severity of intoxication. The infusion period, for the repeated administration is 30 minutes up to 2 hours. The hydroxocobalamin can be administered only intravenously.
2. edetate dicobalt (Kelocyanor®) 300 mg (1 ampoule) for adults in 1-3 minutes, by intravenous route.
Trainer methemoglobin:
1. 4-dimetilamminofenolo, (4-Dmap) sodium thiosulfate: the antidote is administered in the following order:
to. 4-DMAP, 250 mg (3-4 mg per kg of body weight) in 5 ml IV (vial) followed by
b. 12.5 g of sodium thiosulphate in 50 ml IV infusion.
If the antidote was administered and the diagnosis is not that of cyanide intoxication and you have methemoglobin> 30%, you can be administered toluidine blue or methylene blue, to suspend the effect of cyanide antidote. CAUTION: what should be done with extreme caution and only in the hospital, because of the renewed cyanide emissions in the blood.

5. FIRE PREVENTION

5.1 Extinguishing means

Suitable extinguishing means:	alkaline extinguishing powder
Non suitable extinguishing means	water, carbon dioxide (CO2), foam, extinguishing agent acid, acidic fire dust.

5.2 Special hazards arising from the mixture

In case of fire can be released hydrogen cyanide

5.3 Advice for firefighters

General information	Do not allow water used to extinguish the fire flows into drain, in groundwater or surface water. Cool containers at risk with water. If feasible in terms of safety, to move from immediate hazard undamaged containers.
Devices	Normal clothing to fight the fire, such as a compressed air breathing apparatus open circuit (EN137), full flame retardant (EN469), fire resistant gloves (EN659) and boots for firefighters (HOA29 or A30)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and procedures in case of emergency

6.1.1. For non-emergency personnel

Move away from the contaminated area and keep upwind.

6.1.2. For emergency responders

Wear :
Gloves for chemical risks comply with the standards EN420 EN374
Splash goggles in compliance with the Directive 89/686 / EEC and the standard EN166: 2001
Clothing complete conformity with the UNI EN 13034: 2006
Half-facial masks with filters ABEK2P3 R complies with EN14387: 2004 + A1: 2008

6.2 Environmental precautions:

Do not discharge product into the following compartments:

- ground
- ground water
- sewer

In case of pollution of rivers, lakes or drains, inform appropriate authorities in accordance with local laws.

In case of fire, the Shutdowns water should not enter drainage systems, soil, or surface water.

In case of fire, remove the endangered containers and bring them to a safe place, if you can do so safely.

6.3 Methods and materials for containment and cleaning up

6.3.1. Recommendations on how to contain a spill

Ask (if possible) or cover discharges

6.3.2. Recommendations on how to clean up a spill

1. solid substance:

Collect mechanically. Collect in suitable containers. The collected material should be reused or disposed of according to regulations. To absorb spilled substance, it is recommended to use an 'approved industrial vacuum cleaner.

2. solution:

Absorb with material that holds liquids, for example: inert absorbent, diatomaceous earth or absorbent for acid. Collect mechanically. Collect in suitable containers. The collected material should be reused or disposed of according to regulations.

6.3.3. Other informations:

The essence, packaging, fire-fighting water and the remains of any fire should be taken to an appropriate disposal facility, respecting the rules on waste.

6.4 Reference to other sections:

-

7. HANDLING AND STORAGE

7.1. Precautions for safe handling:

7.1.1. General recommendations

Avoid dust formation and keep away from incompatible materials (acids, acid salts, aluminum). Use only under intake hood. Keep fire extinguisher nearby and containment means such as inert absorbent materials, diatomaceous earth or absorbent for acid.

7.1.2. General recommendations on personal hygiene

do not eat, drink or smoke in work areas; Wash hands thoroughly after use and remove contaminated clothing and protective equipment before entering areas where you eat.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed. Keep away from bases, strong oxidation agents and metals.

7.2.1. Managing the risks associated with explosive atmospheres, corrosive conditions, dangers of flammability, incompatible substances and mixtures, evaporation conditions, potential ignition sources

The product itself does not burn but if involved in a fire can release toxic gases.

Suitable containers: plastic.

In case of hydrogen cyanide liberation: E 'possible the formation of dust / air mixtures

flammable or explosive.
Hold around extinguishers suitable substance and plenty of water.
Open containers under suction and close them immediately after 'use.

7.2.2. Containment of the effects of weather conditions, pressure, temperature, sunlight, humidity and vibrations
Keep in a locked room and breezy. Protect against solar radiation and the action of heat.

7.2.4. Precautions for maintaining integrity of the substances
Store in original container. Keep containers tightly closed and store in a dry and well ventilated, clean, dry, lockable.

7.2.5. Provisions on ventilation, specific design for storage rooms or vessels, quantity limits under storage conditions, packaging compatibilities
Do not store close to acids and acid salts.
Keep the deposited substances locked up and forced ventilation.
Use approved packaging ADR

7.3. Specific end use
Professional use

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters
(As Potassium cyanide CAS 151-50-8 EC 205-792-3)
Control parameters: 5 mg / m3 permissible limit value (OEL (EU))
Remarks: Source for the limit values: ACGIH
Control parameters: Skin designation: (OEL (EU))
It can be absorbed through the skin.
The proceedings of suitable measurements are:
Potassium cyanide: OSHA method ID120
NIOSH 7904 method
hydrocyanic acid: OSHA method ID120

8.2. Exposure controls:
Ensure appropriate suction / aeration at the work place and with operational machinery.
To install an emergency shower and an eye shower.

8.2.1. Appropriate engineering controls
It is possible to evaluate the installation of a detector of fugitive emissions is hydrocyanic acid in the working area.

8.2.2. Individual protection measures, such as personal protective equipment

Protection Eye / face	Goggles conform to Directive 89/686 / EEC and the standard EN166: 2001
Skin protection (Hands)	Material of gloves: • Natural rubber latex (NR) Material thickness 0.5 mm Break through time ≥ 480 min Method DIN EN 374 • Nitrile Material thickness 0.11 mm • penetration time ≥ 480 min Method DIN EN 374 • Nitrile thickness of 0.33 mm material penetration

	time ≥ 480 min MetodoDIN EN374
	• Polychloroprene with natural-latex liner material thickness 0.6 mm penetration time ≥ 480 min Method DIN EN 374
Skin protection (Body)	Complete uniforms in compliance with the UNI EN 13034: 2006 Type 6 When cleaning: rubber boots or plastic13034: 2006
Respiratory protection	At the present of hydrogen cyanide: Wear self-contained breathing apparatus. Observe the maximum times of use of respiratory protection. If dust / aerosols: Respirator with combination filter B-P3 Respirator with combination filter ABEK-P3
Thermal hazards	The substance does not present thermal danger

8.2.3. Environmental exposure controls

Prevent spillage of solutions containing cyanide in groundwater, soil, sewage system. Provide for the closure of manholes during the displacement of the solutions. Do not store supplies in areas sewage.

9. 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic Information on physical and chemical properties

Appearances	White Solid
Odour	None when dry Almond and ammonia when wet
Odour Threshold	Not defined
pH	11 (100 g/l in water
Melting point/freezing	Decompose
Initial boiling point and boiling range:	Not applicable
Flash point	Not flammable
Evaporation Rate	Not applicable
Flammalability (solid & gas)	Not flammable
Upper/Lower flammability or explosive limits	Not flammable
Vapour pressure	Not defined
Vapour Density	Not defined
Bulk density	Ca. 3,45 g/cm^3 (20°)

Solubility in water	100 g/l in water at 20°C
Partition coefficient n-octanol/Water	Not applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not applicable
Viscosity	Not defined
Explosive Properties	Not classified as explosive
Oxidazing Properties	Not Oxidazing

9.2. Other informations
None

10. STABILITY AND REACTIVITY

10.1 Chemical Reactivity
Risk of hydrocyanic acid formation in contact with acids, carbon dioxide, air humidity.

10.2 Chemical stability
The product is stable under normal conditions of storage and use.

10.3 Possibility of hazardous reactions
If it is involved in a fire large possibility of hydrocyanic acid formation.

10.4 Conditions to avoid
Under the action of acids (including carbon dioxide) is released hydrocyanic acid, which is flammable and together with the air can form explosive gas mixtures. Keep away from acidic salts.

10.5 Incompatible materials
Acids, acid salts. With time, even the air can lead to the formation of hydrogen cyanide in a closed environment or in containers not hermetically sealed.

10.6 Hazardous decomposition products
HCN hydrogen cyanide (hydrocyanic acid)

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects of activated carbon

Acute toxicity oral way:	DL50 rat: 7,49 mg / kg Method: literature
Acute toxicity Inhalation way	Data not available
Acute toxicity skin way	DL50 rabbit: 33 mg/kg Method: literature
Corrosion / irritation	The irritating effect on the skin cannot be determined as a result of acute dermal toxicity
Eye irritations/damages	Irritant. Method: literature
Sensitization	Data not available
Repeated dose toxicity	Oral Rat: 75 ppm Testing period: 11.5 months Organ recipient / effect: no artifact due to the treatment, no increased frequency of tumors, brain, thyroid gland. Method: Literature national studies

		oral rat Testing period: 90 days NOAEL: ca. 0.3 mg / kg Organ recipient / effect: reproductive organs Substance to be tested: sodium cyanide drinking water study sub-chronic toxicity oral mouse NOAEL: ca. 16.2 mg / kg Organ recipient / effect: reproductive organs Substance to be tested: sodium cyanide drinking water study sub-chronic toxicity
	Cutenous Corrosion/Irritation	Not corrosive and not irritant
	Eyes injuries/Heavy Eyes irritation	No data available
	respiratory or skin sensitization:	No data available
	Germ cell mutagenicity	Genetic mutation hepatocytes of rats: Negative literature method
	Carcinogenicity	No data available
	Reproduction toxicity	Negative
	Specific target organ toxicity (STOT) - single exposure	no data available
	Specific target organ toxicity (STOT) – repeated exposure	no data available
	Inhalation hazards	Inspiration (enough ca. 200 ppm HCN atmospheric air) or ingestion (ca 200-300 mg KCN) can result in the immediate loss of consciousness and death.

11.2 **Information about exposure routes**
It can be absorbed by the skin, especially if sweated of injured

11.3 **Symptoms related to the physical, chemical and toxicological**
Shortness of breath, unconsciousness

11.4 **Immediate, delayed and chronic effects from exposure to short and long term**
The inhalation and ingestion may result in death. In case of long-term exposure limit (15 ppm) have been described individual cases of disorders of thyroid function.

11.5 **Interactive effects**
Unknown interactive effects

11.6 **Absence of specific data**
-

11.7 **Other Information**
None

12. **Ecological informations**

Fishes Toxicity	LC50 Oncorhynchus mykiss: 0.042 mg / l / 96h Method: Literature

	Salvelinus fontinalis: 0.011 mg / l 144 days Method: Literature Reproduction Salvelinus fontinalis NOEC: 0.006 mg / l / 144giorni Method: Literature
Daphnia Toxicity	EC50 Daphnia magna: 0,041 mg / l / 48h Substance to be tested: 2-hydroxy-2-metilpropionitrile Method: US-EPA EC 10 Moinodaphnia spec .: 0.022 mg / l / 5 days Method: literature
Seeweed Toxicity	IC 10 Scenedesmus acuminatus: 0.03 mg / l / 8 days Method: Chronic literature
Living organism toxicity	Lumbriculus variegatus EC50: 11 mg / l / 96 h in the ground Literature method
Terrestrial plants toxicity	Terrestrial plants EC50: 22.4 mg / l Testing period: 32 days Method: Literature
Toxicity other non-mammals	Birds: moderate Substance to be tested: sodium cyanide Lymnaea luteola EC50: 2.5 mg / l / 96 days Method: Literature Plecoptera EC50: 0.43 mg / l / 96giorni Method: Literature
Toxicity for bacterias	EC 10 Pseudomonas putida: 0.001 mg / l / 16h Method: literature Activated sludge EC50: 0.6 mg / l / h 0.5 Method: 87/302 / EEC EC 10 Uronema parduczi: 0.27 mg / l / 20h Method: Literature
Persistence and degradability	Abiotic degradation: Hydrolysis Result: Potentially biodegradable
Bioaccumulative potential	Bio-concentration factor (BFC) 0,30
Mobility in soil	Log KOC: (Air) : High Referred to substance: hydrogen cyanide LogKOC (ground): possible absorbing
Results of PBT and vPvB evaluation	Not applicable
Other adverse effects	None

13. DISPOSAL CONSIDERATIONS

13.1. 13. Methods of Waste Treatment:

This product and its packaging must be disposed of in licensed facilities. It must be attributed an EWC code of hazardous waste based on the provisions of the Directive 2008/98 / EC and subsequent amendments and additions.
The packaging and labeling of waste must be identical to that of the pure product. Do not remove the labels from the packaging until their final destination.
Do not reuse empty containers.
The cyanide waste can only be treated and decontaminated by licensed companies with: Hydrogen peroxide and pH 11).

14. TRANSPORT INFORMATION

UN NUMBER	1588
Name	Inorganic cyanides, solid, n.o.s.
Hazard class referred to transport	6.1
Packaging group	II
Hazardous for Environmental	Dangerous for enviroinmental
Special precautions for user	Use approved packaging

15. REGULATORY INFORMATION

15.1

Legislazione	Applicabilità
Reg. (CE) 1907/2006/CE Reach	SI
Reg. (EC) 1272/2008 and subsequent CLP. amendments and additions	SI
Reg. (EC) 2037/2000 "substances that deplete the ozone layer"	NO
Reg. (EC) 850/2004 "Persistent organic pollutants"	NO
Reg. (EC) 689/2008 "export and import hazardous chemicals"	NO
Substance listed in Annex I of Dir. 96/82 / EC - "Seveso II" Directive, which was transposed into national legislation by the Legislative Decree 334/99	NO
Italian Legislative Decree 81/2008 (Consolidated Act on protection of health and safety in the workplace), as amended	SI
Directive 2014/103/UE "Adr"	NO

15.2 Chemical Safety Assessment

A chemical safety assessment has not been carried out.

16. OTHER INFORMATION

16.1 Data compared to the previous version:

Modified sections 1 and 2

16.2 Abbreviations and acronyms

ADR: European Agreement on the transport of dangerous goods by road
RID: International Regulations on the Transport of Dangerous Goods by Rail.
IMDG: International Marine Code for Dangerous Goods
IATA: the international air transport association
IATA-DGR: Dangerous Goods Regulations' Association aviation
ICAO: International Civil Aviation.
ICAO-TI: Technical Instructions by the international Civil Aviation Organization
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

16.3 Key literature references and sources of the data on this MSDS:

http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances
platform ESIS http://esis.jrc.ec.europa.eu
Safety data sheets of the suppliers of substances used in the formulation

16.4 Classification and procedure used to derive it in accordance with Reg. (EC) 1272/2008 in relation to the mixtures.

Classification according to Regulation (CE) 1272/2008	**Classification Procedure**

16.5. Formazioni adeguate per i lavoratori al fine di garantire la protezione della salute

umana e dell'ambiente

- Training in accordance with the provisions of the Legislative Decree 81/2008 (Consolidated Act on protection of health and safety in the workplace), as amended.
- PPE use

16.6. Other informations

None