

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** potassium dicyanoargentate
- **CAS Number:** 506-61-6
- **EC number:**
208-047-0
- **Index number:**
6-007-00-5
- **Registration number** 01-2120753799-33
- **1.2 Relevant identified uses of the substance or mixture and uses advised against -**
- **Sector of Use**
SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
SU16 Manufacture of computer, electronic and optical products, electrical equipment
- **Product category**
PC14 Metal surface treatment products
PC15 Non-metal-surface treatment products
- **Process category**
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC7 Industrial spraying
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring
PROC15 Use as laboratory reagent
PROC26 Handling of solid inorganic substances at ambient temperature
- **Environmental release category**
ERC1 Manufacture of the substance
ERC2 Formulation into mixture
ERC5 Use at industrial site leading to inclusion into/onto article
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
- **Application of the substance / the mixture** Galvanic bath
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Doduco Contacts and Refining GmbH
Im Altgefäll 12
D-75181 Pforzheim
Telefon +49 (0) 7231-602-0
Telefax +49 (0) 7231-602-554
E-Mail-Adresse der für das SDB zuständigen sachkundigen Person: sds@gbk-ingelheim.de
Web: www.doduco.net
- **Further information obtainable from:**
- **1.4 Emergency telephone number:**
Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0)6132-84463

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SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



corrosion

Met. Corr. 1 H290 May be corrosive to metals.
 Skin Corr. 1A H314 Causes severe skin burns and eye damage.
 Eye Dam. 1 H318 Causes serious eye damage.



environment

Aquatic Acute 1 H400 Very toxic to aquatic life.
 Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
 The substance is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms**



GHS05



GHS09

- **Signal word** Danger
- **Hazard statements**
 H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.
 H410 Very toxic to aquatic life with long lasting effects.
- **Precautionary statements**
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Additional information:**
 EUH032 Contact with acids liberates very toxic gas.
 EUH071 Corrosive to the respiratory tract.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.1 Substances**
- **CAS No. Description**
 potassium dicyanoargentate

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- **Identification number(s): CAS number: 506-61-6**
- **EC number:** 208-047-0
- **Index number:** 006-007-00-5

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Remove breathing equipment only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Do not use mouth to mouth or mouth to nose resuscitation.
Use a respiratory bag or breathing device.
Take affected persons into fresh air and keep quiet.
Call a doctor immediately.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**
Cramp
Breathing difficulty
Nausea
- **Hazards** Danger of circulatory collapse.
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
Foam
Fire-extinguishing powder
- **For safety reasons unsuitable extinguishing agents:**
Water
Carbon dioxide
- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
Hydrogen cyanide (HCN)
Carbon monoxide (CO)
Nitrogen oxides (NO_x)
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Avoid formation of dust.
Use respiratory protective device against the effects of fumes/dust/aerosol.

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· 6.2 Environmental precautions:

Do not allow product to reach sewage system or any water course.
 Inform respective authorities in case of seepage into water course or sewage system.
 Do not allow to enter sewers/ surface or ground water.

· 6.3 Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to section 13.
 Ensure adequate ventilation.

· 6.4 Reference to other sections

See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling

Prevent formation of dust.
 Open and handle receptacle with care.
 Ensure good ventilation/exhaustion at the workplace.

· Information about fire - and explosion protection: Keep respiratory protective device available.

· 7.2 Conditions for safe storage, including any incompatibilities
· Storage:

· Requirements to be met by storerooms and receptacles: Store only in the original receptacle.

· Information about storage in one common storage facility:

Do not store together with acids.
 Store away from flammable substances.

· Further information about storage conditions: Keep receptacle tightly sealed.

· Storage class: 8B

· 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:

potassium dicyanoargentate

WEL	Long-term value: 5 mg/m ³ as CN; Sk
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· DNELs

Dermal	DNEL	0.011 mg/kg bw/day (-)
Inhalative	DNEL	0.078 mg/m ³ (-)

· Additional information: The lists valid during the making were used as basis.

· 8.2 Exposure controls

· Appropriate engineering controls No further data; see section 7.

· Individual protection measures, such as personal protective equipment

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing
 Wash hands before breaks and at the end of work.
 Store protective clothing separately.
 Avoid contact with the eyes and skin.

· Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.
 Filter B
 Filter P3

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· Hand protection



Protective gloves

· Material of gloves

Chloroprene rubber, CR

Butyl rubber, BR

Fluorocarbon rubber (Viton)

Nitrile rubber, NBR

· Penetration time of glove material

The determined penetration times according to EN 16523-1:2015 are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

· Not suitable are gloves made of the following materials:

Strong material gloves

Leather gloves

· Eye/face protection



Tightly sealed goggles

· Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Colour:	White
· Odour:	Characteristic
· Odour threshold:	Not determined.
· Melting point/freezing point:	~350 °C
· Boiling point or initial boiling point and boiling range	Undetermined.
· Lower and upper explosion limit	
· Lower:	Not determined.
· Upper:	Not determined.
· Flash point:	Not applicable.
· Decomposition temperature:	Not determined.
· pH	Not determined.
· Viscosity:	Not applicable.
· Kinematic viscosity	Not determined.
· Dynamic:	Not applicable.
· Solubility	
· water at 20 °C:	142.8 g/l
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure:	Not determined.
	Not applicable.
· Density and/or relative density	
· Density at 20 °C:	2.36 g/cm³
· Relative density	Not determined.
· Bulk density:	1,1 - 1,3 g/cm³

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· Vapour density	Not determined.
· 9.2 Other information	No further relevant information available.
· Appearance:	
· Form:	Solid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Not determined.
· Explosive properties:	Product does not present an explosion hazard.
· Change in condition	
· Evaporation rate	Not applicable.
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Void
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	May be corrosive to metals.
· Desensitised explosives	Void

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SECTION 10: Stability and reactivity

- 10.1 Reactivity No further relevant information available.
- 10.2 Chemical stability
- Thermal decomposition / conditions to be avoided: Stable up to melting point.
- 10.3 Possibility of hazardous reactions Contact with acids releases toxic gases.
- 10.4 Conditions to avoid No further relevant information available.
- 10.5 Incompatible materials: No further relevant information available.
- 10.6 Hazardous decomposition products: Hydrogen cyanide (prussic acid)

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SECTION 11: Toxicological information

- 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
- Acute toxicity Based on available data, the classification criteria are not met.
- Skin corrosion/irritation Causes severe skin burns and eye damage.
- Serious eye damage/irritation Causes serious eye damage.
- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
- Germ cell mutagenicity Based on available data, the classification criteria are not met.
- Carcinogenicity Based on available data, the classification criteria are not met.
- Reproductive toxicity Based on available data, the classification criteria are not met.
- STOT-single exposure Based on available data, the classification criteria are not met.
- STOT-repeated exposure Based on available data, the classification criteria are not met.

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- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**
- **Endocrine disrupting properties** Substance is not listed.

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

LC50	0.0049 mg/l (96h) (Pimephales promelas (fathead minnow)) (Ag)
	0.083 mg/l (96h) (Lepomis macrochirus (bluegrill)) (CN)
	0.057 mg/l (96h) (Onchorhynchus mykiss (rainbow trout)) (CN)
LC50	0.12 mg/l (96h) (Pimephales promelas (fathead minnow)) (CN)
EC50	0.0015 mg/l (48h) (Daphnia magna (water flea)) (Ag)
EC50	0.41 mg/l (48h) (Daphnia magna (water flea)) (CN)
EC50	0.001 mg/l (16h) (Ps.putida) (CN)
EC50	1.8 mg/l (72h) (Eutosiphon sulcatum) (CN)
IC50	0.03 mg/l (8d) (Sc.quadricauda) (CN)

- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.

· 12.5 Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

· 12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

- **12.7 Other adverse effects** No further relevant information available.

· **Remark:** Very toxic for fish

· Additional ecological information:

· General notes:

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

Water danger class 3 (German Regulation) (Assessment by list): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

· Recommendation

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Must be specially treated adhering to official regulations.

Contact manufacturer for recycling information.

· Uncleaned packaging:

· Recommendation:

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

Packagings that may not be cleansed are to be disposed of in the same manner as the product.

- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

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SECTION 14: Transport information

· 14.1 UN number or ID number

· ADR, IMDG, IATA

UN1759

· 14.2 UN proper shipping name

· ADR

UN1759 CORROSIVE SOLID, N.O.S.
(potassium dicyanoargentate)

· IMDG, IATA

UN1759 CORROSIVE SOLID, N.O.S.
(potassium dicyanoargentate)

· 14.3 Transport hazard class(es)

· ADR



· Class

8 (C10) Corrosive substances.

· Label

8

· IMDG, IATA



· Class

8 Corrosive substances.

· Label

8

· 14.4 Packing group

· ADR, IMDG, IATA

II

· 14.5 Environmental hazards:

· Marine pollutant:

· Special marking (ADR):

Environmentally hazardous substance, solid

Yes (P)

Symbol (fish and tree)

· 14.6 Special precautions for user

· Hazard identification number (Kemler code):

· EMS Number:

· Stowage Category

Warning: Corrosive substances.

80

F-A,S-B

A

· 14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

· Transport/Additional information:

· ADR

· Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g

· IMDG

· Limited quantities (LQ)

· Excepted quantities (EQ)

1 kg

Code: E2

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g

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· UN "Model Regulation":	CORROSIVE SOLID, N.O.S .(potassium dicyanoargentate), 8, II ENVIRONMENTALLY HAZARDOUS,
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SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category E1** Hazardous to the Aquatic Environment
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
- **National regulations:**
- **Waterhazard class:** Water danger class 3 (Assessment by list): extremely hazardous for water.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Abbreviations and acronyms:**
 - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 - ICAO: International Civil Aviation Organisation
 - ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
 - IMDG: International Maritime Code for Dangerous Goods
 - IATA: International Air Transport Association
 - P: Marine Pollutant
 - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - DNEL: Derived No-Effect Level (UK REACH)
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - Met. Corr.1: Corrosive to metals – Category 1
 - Skin Corr. 1A: Skin corrosion/irritation – Category 1A
 - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
 - Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
 - Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
- *** Data compared to the previous version altered.**

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Annex: Exposure scenario

- **Description of the activities / processes covered in the Exposure Scenario**
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use**
- **Duration and frequency** 5 workdays/week.
- **Physical parameters**
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure** Use only on hard ground.
- **Other operational conditions affecting worker exposure** Avoid contact with the skin.
- **Other operational conditions affecting consumer exposure** No special measures required.
- **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures** No special measures required.
- **Technical protective measures**
Use product only in enclosed systems.
Ensure that suitable extractors are available on processing machines
- **Personal protective measures**
Avoid contact with the skin.
Use suitable respiratory protective device in case of insufficient ventilation.
Filter B
Filter P3
Protective gloves
- **Measures for consumer protection** Ensure adequate labelling.
- **Environmental protection measures**
- **Water** Do not allow to reach sewage system.
- **Soil** Prevent contamination of soil.
- **Disposal measures** Disposal must be made according to official regulations.
- **Disposal procedures**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Waste type** Partially emptied and uncleaned packaging
- **Exposure estimation**
- **Consumer** Not relevant for this Exposure Scenario.

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