


<b>SAFETY DATA SHEET</b>	In accordance with Regulation 1907/2006 (REACH), amended by Regulation 453/2010	
	<b>TRIPOTASSIUM HEXACYANOFERRATE</b>	

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY


### 1.1. Product identifier

Name: Tripotassium hexacyanoferrate.  
Synonyms : Potassium ferricyanide.  
CLP Annex VI, part 3, index nr. --  
EC/EINECS No. : 237-323-3  
CAS No. 13746-66-2  
Registration nr : 01-2120787462-46-0000

### 1.2. Relevant identified uses of the substance or mixture and uses advised against


#### 1.2.1 Intended use :

Formulation	
F-1	<p>Formulation or re-packaging</p> <p>Further description of the use:  Contributing activity/technique for the environment :  - ERC2: Formulation into mixture</p> <p>Contributing activity/technique for the workers :  - PROC 4: Chemical production where opportunity for exposure arises ; PROC 8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities ; PROC 8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities ; PROC 9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>Product Category formulated: PC 14: Metal surface treatment products ; PC 21: Laboratory chemicals  Technical function of the substance: no technical function</p>
Uses at industrial sites	
IW-1	<p>Chemical synthesis of a polymer additive</p> <p>Further description of the use:  Contributing activity/technique for the environment :  - ERC6a: Use of intermediate</p> <p>Contributing activity/technique for the workers :  - PROC 4: Chemical production where opportunity for exposure arises Sector of end use: SU 9: Manufacture of fine chemicals  Technical function of the substance: intermediate (precursor)</p>
IW-2	<p>Use at industrial site for metal/surface treatment or laboratory chemical</p> <p>Further description of the use:  Contributing activity/technique for the environment :  - ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ; ERC5: Use at industrial site leading to inclusion into/onto article</p>

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<p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> <li>- PROC 2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions ; PROC 4: Chemical production where opportunity for exposure arises ; PROC 7: Industrial spraying ; PROC 8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities ; PROC 8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities [EU REACH] ; PROC 9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) ; PROC 10: Roller application or brushing ; PROC 13: Treatment of articles by dipping and pouring ; PROC 15: Use as laboratory reagent</li> </ul> <p>Product Category used: PC 14: Metal surface treatment products ; PC 15: Non-metal-surface treatment products ; PC 21: Laboratory chemicals Sector of end use: SU 9: Manufacture of fine chemicals Technical function of the substance: hardener ; plating agent</p>
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Uses by professional workers	
PW-1	<p>Laboratory chemical</p> <p>Further description of the use: Use as a reactant or aid in small scale chemical syntheses. Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> <li>- ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ; ERC8b: Widespread use of reactive processing aid (no inclusion into or onto article, indoor)</li> </ul> <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> <li>- PROC 8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities ; PROC 8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities [EU REACH] ; PROC 9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) ; PROC 15: Use as laboratory reagent</li> </ul> <p>Product Category used: PC 21: Laboratory chemicals Sector of end use: SU 9: Manufacture of fine chemicals ; SU 24: Scientific research and development Technical function of the substance: intermediate (precursor)</p>
PW-2	<p>Professional use in surface treatment</p> <p>Further description of the use: Contributing activity/technique for the environment :</p> <ul style="list-style-type: none"> <li>- ERC8d: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)</li> </ul> <p>Contributing activity/technique for the workers :</p> <ul style="list-style-type: none"> <li>- PROC 4: Chemical production where opportunity for exposure arises ; PROC 8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities ; PROC 10: Roller application or brushing ; PROC 11: Non industrial spraying</li> </ul> <p>Product Category used: PC 14: Metal surface treatment products ; PC 15: Non-metal-surface treatment products Sector of end use: SU 9: Manufacture of fine chemicals Technical function of the substance: hardener ; plating agent</p>

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1.2.2 Uses advised against no additional information

### 1.3 Details of the supplier of the safety datasheet

Supplier : GENTROCHEMA BV  
 Lage Ham 190, NL-5102 AE Dongen, The Netherlands  
 Tel. : +31.162.249020  
 E-mail: info@gentrochema.nl Website : [www.gentrochema.nl](http://www.gentrochema.nl)

Emergency telephone nr : during office hours (08:30 - 17:00) : +31.162.249020  
 After office hours (*only for health professionals*) : +44.870.600.6266

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance

#### 2.1.1. Classification according to Regulation 1272/2008 EC

Eye Irritation 2, H319  
 Aquatic Chronic 3, H412

### 2.2 Label elements

#### 2.2.1. Labelling according to Regulation 1272/2008 EC

*Product identifier* : Tripotassium hexacyanoferrate

*Index Nr* : ----

*Hazard Pictogram(s)*:



*Signal word* : Warning

*Hazard Statement(s)*:

H412 : Harmful to aquatic life with long lasting effects.

H319: Causes serious eye irritation.

EUH032: Contact with acids liberates very toxic gas


*Precautionary statement(s)*

P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face 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.

P337+P313: If eye irritation persists: Get medical advice/attention.

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P273: Avoid release to the environment.

P501: Dispose of contents/container to an approved waste disposal plant.

### 2.3. Other hazards

No additional information

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Chemical characterization: Tripotassium hexacyanoferrate, min. 99 %  $K_3(FeCN)_6$ , with non hazardous additions

Composition/information on ingredients :

EINECS nr : 237-323-3  
CAS nr : 13746-66-2  
Index No. ----

Eye Irritation 2, H319  
Aquatic Chronic 3, H412




## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

- **General information :** In case of eye contact, immediately flush eyes with copious amounts of water for at least 15 minutes.
- **After inhalation :** Remove to fresh air.  
If not breathing give artificial respiration.  
If breathing is difficult, give oxygen.  
Call a physician.
- **After skin contact :** Flush skin with water.
- **After eye contact :** Check for and remove any contact lenses. Immediately flush eyes with copious amounts of water, keeping eyelids open. If eye irritation persists: Get medical advice/attention
- **After swallowing :** Drink plenty of water, provided person is conscious and induce vomiting.  
Call a physician.

### 4.2. Most important symptoms and effects, both acute and delayed

Causes serious eye irritation.

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#### **4.3 Indication of any immediate medical attention and special treatment needed**

No additional information

### **5. FIRE-FIGHTING MEASURES**

#### **5.1 Extinguishing media**

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide  
 Non-suitable extinguishing media: Not known

#### **5.2 Special hazards arising from the substance**

development of toxic and irritating decomposition products.

#### **5.3 Advice for fire-fighters**

Wear self contained breathing apparatus if necessary.  
 Contact with acids liberates very toxic gas (Hydrogen Cyanide)

#### **5.4 Further information**

Product is not combustible.

### **6. ACCIDENTAL RELEASE MEASURES**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid causing dust. Ensure adequate ventilation.

#### **6.2 Environmental precautions**

Avoid release to the environment.

#### **6.3 Methods and materials for containment and cleaning up**

Pick up spilled product, keep in a closed container and hold for waste disposal.

#### **6.4 Reference to other sections**

For safe use: refer to section 7  
 For personal protection: refer to section 8.  
 For disposal: refer to section 13

### **7. HANDLING AND STORAGE**


#### **7.1 Precautions for safe handling**

Avoid causing dust. Avoid contact with skin and eyes.

#### **7.2 Conditions for safe storage, including any incompatibilities**

Avoid exposure to sun light.  
 Other information: For quality reasons; Store in a cool dry place.

#### **7.3 Specific end uses**

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No additional information

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

**Exposure assessment will be updated without undue delay when the test results of algae and fish studies are finalized.**

### 8.2 Exposure controls

Do not breathe dust.  
 Avoid contact with skin or eyes.  
 Wash thoroughly after handling.  
 Only use in a well-ventilated place.  
 Safety shower and eye bath should be present.

#### Personal protection :

- Hand protection : Use chemical resistant gloves. See standard : EN-374-3:2003.
- Eye/face protection : Use tight fitting goggles. See standard: EN 166:2001.
- Skin/body protection : Wear appropriate protective clothing.
- Respiratory protection : Wear appropriate respirator, Filter P2 (white).

#### Other information :

Working clothes should not be taken home.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 information on basic physical and chemical properties

<b>Appearance:</b>	Solid, odourless, ruby-red crystal powder
<b>Odour:</b>	Odourless
<b>Odour threshold:</b>	Not determined
<b>PH-value :</b>	Not determined
<b>Alkalinity or acidity :</b>	Not determined
<b>Boiling point :</b>	Boiling point could not be determined.(it decomposes)
<b>Melting point :</b>	Melting point could not be determined.(it decomposes)
<b>Flash point:</b>	Not applicable.
<b>Evaporation rate:</b>	Not relevant
<b>Flammability :</b>	Non flammable
<b>Vapour pressure :</b>	No vapour pressure is derived because the melting point is > 300 °C
<b>Vapour density :</b>	Not available.
<b>Specific gravity/Density :</b>	1.8934 g/cm <sup>3</sup>
<b>Solubility in water :</b>	363 g/l at 20°C
<b>Solubility in other solvents :</b>	Alcohol- Ethanol : limited
<b>Partition coefficient n-octanol/water:</b>	Not available.
<b>Auto ignition temperature:</b>	No self ignition observed under test conditions.
<b>Decomposition temperature :</b>	No decomposition temperature is reported
<b>Viscosity :</b>	Not applicable
<b>Explosive properties:</b>	None

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# SAFETY DATA SHEET

In accordance with  
Regulation  
1907/2006  
(REACH),  
amended by  
Regulation  
453/2010



TRIPOTASSIUM HEXACYANOFERRATE

3.01 / 20190906

Oxidising properties : None

## 9.2. other information

No additional information.

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

Hazardous reaction with acids.  
Stable under circumstances as advised in section 7.

### 10.2 Chemical stability

Avoid exposure to sun light.

### 10.3 Possibility of hazardous reactions

Do not mix with acids, oxidisers, nitrite and nitrate salts.  
Reacts violently with ammonia and chromic acid.

### 10.4 Conditions to avoid

Avoid exposure to sun light.

### 10.5 Incompatible materials

Do not mix with acids, oxidisers, nitrite and nitrate salts.  
Reacts violently with ammonia and chromic acid.

### 10.6. Hazardous decomposition products

Hydrogen Cyanide (HCN)


## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

Endpoint	Route	Dose descriptor or qualitative effect characterisation; test type
Acute toxicity	oral	no adverse effect observed (LD50): 5110mg/kg bw
Acute toxicity	dermal	no adverse effect observed (LD50): 2000mg/kg bw
Acute toxicity	inhalation	no study available
Irritation / Corrosivity	skin	no adverse effect observed (not irritating)
Irritation / Corrosivity	resp. tract	no study available
Irritation / Corrosivity	eye	adverse effect observed (irritating)
Sensitisation	skin	no adverse effect observed (not sensitising)

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Sensitisation	resp. tract	no study available
Repeated dose toxicity	oral	no adverse effect observed (NOAEL): 450mg/kg bw/day (chronic; rat [common rodent species])
Repeated dose toxicity	dermal (systemic effects)	no study available
Repeated dose toxicity	dermal (local effects)	no study available
Repeated dose toxicity	inhalation (systemic effects)	no study available
Repeated dose toxicity	inhalation (local effects)	no study available
Mutagenicity	in vitro / in vivo	In vitro: no adverse effect observed (negative) In vivo: no study available
Carcinogenicity	oral	no adverse effect observed (NOAEL): 450mg/kg bw/day (chronic; rat [common rodent species])
Carcinogenicity	dermal	no study available
Carcinogenicity	inhalation	no study available
Reproductive toxicity: effects on fertility	oral	no study available
Reproductive toxicity: effects on fertility	dermal	no study available
Reproductive toxicity: effects on fertility	inhalation	no study available
Reproductive toxicity: developmental toxicity	oral	no adverse effect observed (NOAEL): 1000mg/kg bw/day (subacute; rat [common rodent species])
Reproductive toxicity: developmental toxicity	dermal	no study available
Reproductive toxicity: developmental toxicity	inhalation	no study available

## 12. ECOLOGICAL INFORMATION


### 12.1 Toxicity

Hazard assessment conclusion for the environment

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Compartment	Hazard conclusion	Remarks/Justification
Freshwater	PNEC aqua (freshwater): 59µg/L Intermittent releases:	Assessment factor: 1000 Extrapolation method: assessment factor PNEC aqua (freshwater) A 96h-LC50 value for fish for the analogue sodium ferrocyanide and a 48h-EC50 value for invertebrates is available for Potassium ferricyanide; >100 mg/L and 59 mg/L respectively. The lowest acute effect concentration for Daphnia is used with an assessment factor of 1000 according to Table R.10 - 4 in Guidance Document R.10.
Marine water	PNEC aqua (marine water): 5.9µg/L Intermittent releases:	Assessment factor: 10000 Extrapolation method: assessment factor PNEC aqua (marine water) A 96h-LC50 value for fish is available for the analogue sodium ferrocyanide and a 48h-EC50 value for invertebrates is available for Potassium ferricyanide; >100 mg/L and 59 mg/L respectively. The lowest acute effect concentration for Daphnia is used with an assessment factor of 10000 according to Table R.10 -5 in Guidance Document R.10.
Sediments (freshwater)	no exposure of sediment expected:	The anion Fe(CN) <sub>6</sub> <sup>3-</sup> has low potential for adsorption to sediment and low bioaccumulation potential. Therefore, no exposure of sediment is expected.
Sediments (marine water)	no exposure of sediment expected:	The anion Fe(CN) <sub>6</sub> <sup>3-</sup> has low potential for adsorption to sediment and low bioaccumulation potential. Therefore, no exposure of sediment is expected.
Sewage treatment plant	PNEC STP: 100mg/L	Assessment factor: 10 Extrapolation method: assessment factor PNEC STP The NOEC for STP microorganisms was 1000 mg/L, based on read-across data from the target substance's analogue sodium ferrocyanide. To determine the PNEC, an assessment factor of 10 was applied to this concentration, resulting in a PNEC for STP of 100 mg/L.
Soil	no exposure of soil expected:	The anion Fe(CN) <sub>6</sub> <sup>3-</sup> has low potential for adsorption to soil and low bioaccumulation potential. Therefore, no exposure of soil is expected.
Air	no hazard identified:	There is no data to derive a PNEC in air, and no regulatory requirement. Therefore, the PNEC air is not derived.
Secondary poisoning	no potential for bioaccumulation:	The substance is not classified as H373, H372, H360, H361 or H362 under the CLP Regulation, nor has it bioaccumulative potential or low biodegradability. Therefore, exposure assessment regarding secondary poisoning is not required and thus no PNEC <sub>air</sub> is derived.

#### Conclusion on environmental classification

Classification of the substance is based on the currently available information: 48h-EC50 of Daphnia of 59 mg/L. In absence of data on biodegradation, the substance should be regarded as not rapidly degradable according to EC1272/2008. According to Table 4.1.0.(iii), the substance should be classified as Chronic Category 3. No GHS pictogram is used and no signal word is used.

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### 12.5 Results of PBT and vPvB assessment

Not relevant  
No data available.

### 13. DISPOSAL CONSIDERATIONS

**Product/packing :** Observe all federal, state and local environmental regulations. See directives 75/442/EEC and 2006/12/EC.

### 14. TRANSPORT INFORMATION

Not classified as hazardous goods.

### 15. REGULATORY INFORMATION

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

##### State regulations

Observe all federal, state and local regulations.

##### additional regulations and restrictions:

REACH regulation

#### 15.2 Chemical Safety report

A CSA has been carried out

### 16. OTHER INFORMATION

**Consulted literature:** various  
**Version :** Nr. 3.01 of 06.09.2019. (Replaces all preceding versions.)  
**Changes per section compared to last version :** #1.3 ( address)  
**Name of composer and manager in charge :** Mr W. van Loon.  
**Printing date :** 05-09-2019

#### Used abbreviations

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA : International Air Transport Association  
ICAO: International Civil Aviation Organization  
GHS: Globally Harmonized 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)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent