

SAFETY DATA SHEET

# Pen-plating Gold Bath Yellow JE270-2

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

<i>Trade name:</i>	Pen-plating Gold Bath Yellow JE270-2
<i>Product no.:</i>	PE10204
<i>Unique formula identifier (UFI):</i>	4UH5-C5AY-J38W-50X3

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

<i>Relevant identified uses of the substance or mixture:</i>	Liquid for galvanic processes Restricted to professional users.
<i>Uses advised against :</i>	None known.

### 1.3. Details of the supplier of the safety data sheet

<i>Company and address:</i>	<b>Aktiv Guld A/S</b> Vallensbækvej 46 2625 Vallensbæk Denmark +45 43 66 20 00 <a href="https://www.aktivguld.com/">https://www.aktivguld.com/</a>
<i>E-mail:</i>	ag@aktivguld.com
<i>Revision:</i>	03/09/2025
<i>SDS Version:</i>	6.0
<i>Date of previous version:</i>	08/08/2025 (6.0)

### 1.4. Emergency telephone number

Contact the poison hotline: +45 82 12 12 12 (24 hour service)  
See section 4 "First aid measures".

## SECTION 2: HAZARDS IDENTIFICATION

Classified according to Regulation (EC) No. 1272/2008 (CLP).

### 2.1. Classification of the substance or mixture

Acute Tox. 3; H301, Toxic if swallowed.  
Acute Tox. 2; H310, Fatal in contact with skin.  
Acute Tox. 4; H332, Harmful if inhaled.

Carc. 1B; H350, May cause cancer.

Repr. 1B; H360, May damage fertility or the unborn child.

Aquatic Chronic 2; H411, Toxic to aquatic life with long lasting effects.

## 2.2. Label elements

*Hazard pictogram(s):*



*Signal word:*

Danger

*Hazard statement(s):*

Toxic if swallowed. (H301)

Fatal in contact with skin. (H310)

Harmful if inhaled. (H332)

May cause cancer. (H350)

May damage fertility or the unborn child. (H360)

Toxic to aquatic life with long lasting effects. (H411)

*Precautionary statement(s):*

*General:*

Not applicable.

*Prevention:*

Do not get in eyes, on skin, or on clothing. (P262)

Wash hands and exposed skin thoroughly after handling. (P264)

Wear face protection/protective gloves/protective clothing. (P280)

*Response:*

Immediately call a POISON CENTER/doctor. (P310)

Take off immediately all contaminated clothing and wash it before reuse. (P361+P364)

*Storage:*

Not applicable.

*Disposal:*

Dispose of contents/container in accordance with local regulation. (P501)

*Hazardous substances:*

Salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

Cobalt (II) citrate

*Additional labelling:*

EUH032, Contact with acids liberates very toxic gas.  
EUH208, Contains Cobalt (II) citrate. May produce an allergic reaction.

Restricted to professional users.

UFI: 4UH5-C5AY-J38W-50X3

## 2.3. Other hazards

**Additional warnings:**

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2023/707.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1. Substances

Not applicable. This product is a mixture.

#### 3.2. Mixtures

Product/substance	Identifiers	% w/w	Classification	Note
Salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex	CAS No.: EC No.: REACH: Index No.: 006-007-00-5	max. 3%	EUH032 Acute Tox. 2, H300 Acute Tox. 1, H310 Acute Tox. 2, H330 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	
Cobalt (II) citrate	CAS No.: 866-81-9 EC No.: 212-751-3 REACH: 01-2119552495-33-XXXX Index No.:	0,5%	Acute Tox. 4, H302 Skin Sens. 1, H317 Eye Dam. 1, H318 Resp. Sens. 1, H334 Muta. 2, H341 Carc. 1B, H350 Repr. 1B, H360 Aquatic Chronic 2, H411	
Potassium dicyanoargentate(1)	CAS No.: 506-61-6 EC No.: 208-047-0 REACH: 01-2120753799-33-XXXX Index No.:	<0.0015%	EUH032 EUH071 Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=100)	

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

## Other information

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## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

*General information:*

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

*Inhalation:*

Upon breathing difficulties or irritation of the respiratory tract: Bring the injured person into fresh air. Make sure the injured person is continuously monitored. Prevent shock by keeping the injured person warm and calm. If breathing ceases, give mouth-to-mouth resuscitation. If unconscious, roll the injured person into recovery position. Call an ambulance.

*Skin contact:*

Remove contaminated clothing and shoes immediately. Ensure to wash exposed skin thoroughly with water and soap. Skin cleanser can be used. DO NOT use solvents or thinners. If skin irritation occurs: Get medical advice/attention.

*Eye contact:*

If in eyes: Flush eyes with water or saline water (20-30 °C) for at least 5 minutes. Remove contact lenses. Seek medical assistance and continue flushing during transport.

*Ingestion:*

In the case of ingestion, contact a doctor immediately. If the person is conscious, give them water. DO NOT try to induce vomiting unless this is recommended by a doctor. Hold head facing down to prevent vomit from returning to the mouth and throat. Prevent shock by keeping the injured person warm and calm. Initiate immediate resuscitation if breathing stops. If unconscious, roll the injured person into recovery position. Call an ambulance.

*Burns:*

Not applicable.

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

Sensitisation: This product contains substances, which may produce an allergic reaction through inhalation. The allergic reaction typically takes place within an hour after exposure. The reaction results in an inflammatory reaction to the lungs.

Sensitisation: This product contains substances, which may trigger allergic reaction upon dermal contact. Manifestation of allergic reactions typically takes place within 12-72 hours after exposure.

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

IF exposed or concerned:

Get immediate medical advice/attention.

#### **Information to medics**

Bring this safety data sheet or the label from this product.

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### **SECTION 5: FIREFIGHTING MEASURES**

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#### **5.1. Extinguishing media**

Not applicable.

#### **5.2. Special hazards arising from the substance or mixture**

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

#### **5.3. Advice for firefighters**

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact the chemical emergency services on 72 85 20 00 (24 h service) in order to obtain further advice.

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### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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

Avoid direct contact with spilled substances.  
Ensure adequate ventilation, especially in confined areas.  
Avoid inhalation of vapours from spilled material.  
Contaminated areas may be slippery.

#### **6.2. Environmental precautions**

Avoid discharge to lakes, streams, sewers, etc. In the event of leakage to the surroundings, contact local environmental authorities.

#### **6.3. Methods and material for containment and cleaning up**

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.  
Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

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

See section 13 "Disposal considerations" on handling of waste.  
See section 8 "Exposure controls/personal protection" for protective measures.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

It is recommended to install waste collection trays in order to prevent emissions to the waste water system and surrounding environment.

Avoid direct contact with the product.

Avoid contact during pregnancy and while nursing.

Smoking, drinking and consumption of food is not allowed in the work area.

See section 8 "Exposure controls/personal protection" for information on personal protection.

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

Store locked up. A sign warning of toxic materials shall be affixed the room and cupboard containing the product(s).

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

*Recommended storage material:* Always store in containers of the same material as the original container.

*Storage conditions:* No specific requirements.

*Incompatible materials:* Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

### 7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

No substances are listed in the national list of substances with an occupational exposure limit.

#### DNEL

Potassium dicyanoargentate(1)

Duration:	Route of exposure:	DNEL:
Long term – Systemic effects - Workers	Dermal	11 µg/kg bw/day
Long term – Systemic effects - Workers	Inhalation	78 µg/m <sup>3</sup>

#### PNEC

Potassium dicyanoargentate(1)

Route of exposure:	Duration of Exposure:	PNEC:
Freshwater		46 ng/L
Freshwater sediment		438.13 mg/kg
Marine water		860 ng/L
Marine water sediment		438.13 mg/kg

Sewage treatment plant		25 µg/L
Soil		1.05 mg/kg

## 8.2. Exposure controls

Apply general control to prevent unnecessary exposure

*General recommendations:*

Smoking, drinking and consumption of food is not allowed in the work area.

*Exposure scenarios:*

There are no exposure scenarios implemented for this product.

*Exposure limits:*

Occupational exposure limits have not been defined for the substances in this product.

*Appropriate technical measures:*

Do not recirculate outlet air that contain the substances.

Apply standard precautions during use of the product. Avoid inhalation of vapours.

*Hygiene measures:*

In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Pay special attention to hands, forearms and face.

*Measures to avoid environmental exposure:*


Keep damming materials near the workplace. If possible, collect spillage during work.

## Individual protection measures, such as personal protective equipment


*Generally:*

Use only CE marked protective equipment.


*Respiratory Equipment:*

Work situation	Type	Class	Colour	Standards	
In case of inadequate ventilation	Combination filter A2B2E2K1-P2	Class 1/2	Brown/Gray/Yellow/Green/White	EN14387	


*Skin protection:*

Recommended	Type/Category	Standards	
Dedicated work clothing should be worn.	-	-	

*Hand protection:*

Work situation	Material	Glove thickness (mm)	Breakthrough time (min.)	Standards	
Change gloves often.	Nitrile	0,3	> 480	EN374-2, EN16523-1, EN388	

*Eye protection:*

Type	Standards	
Face shield alternatively safety glasses with side shields.	EN166	

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<i>Physical state:</i>	Liquid
<i>Colour:</i>	Pink
<i>Odour / Odour threshold:</i>	Mild, None
<i>pH:</i>	4-5
<i>Density (g/cm<sup>3</sup>):</i>	1.02 (20 °C)
<i>Kinematic viscosity:</i>	No data available.
<i>Particle characteristics:</i>	Does not apply to liquids.

#### Phase changes

<i>Melting point/Freezing point (°C):</i>	No data available.
<i>Softening point/range (°C):</i>	Does not apply to liquids.
<i>Boiling point (°C):</i>	No data available.
<i>Vapour pressure:</i>	No data available.
<i>Relative vapour density:</i>	No data available.
<i>Decomposition temperature (°C):</i>	No data available.

#### Data on fire and explosion hazards

<i>Flash point (°C):</i>	No data available.
<i>Flammability (°C):</i>	No data available.
<i>Auto-ignition temperature (°C):</i>	No data available.
<i>Lower and upper explosion limit (% v/v):</i>	No data available.

#### Solubility

<i>Solubility in water:</i>	Completely soluble
<i>n-octanol/water coefficient (LogKow):</i>	No data available.
<i>Solubility in fat (g/L):</i>	No data available.

### 9.2. Other information

<i>Other physical and chemical parameters:</i>	No data available.
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*Oxidizing properties:*

No data available.

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Contact with acids liberates very toxic gas.

### 10.2. Chemical stability

The product is stable under the conditions, noted in section 7 "Handling and storage".

### 10.3. Possibility of hazardous reactions

Contact with acids liberates very toxic gas.

### 10.4. Conditions to avoid

None known.

### 10.5. Incompatible materials

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

Toxic if swallowed.

Fatal in contact with skin.

Harmful if inhaled.

#### Skin corrosion/irritation

Based on available data, the classification criteria are not met.

#### Serious eye damage/irritation

Based on available data, the classification criteria are not met.

#### Respiratory sensitisation

This product contains substances that may trigger an allergic reaction in already sensitized persons.

#### Skin sensitisation

This product contains substances that may trigger an allergic reaction in already sensitized persons.

#### Germ cell mutagenicity

Based on available data, the classification criteria are not met.

#### Carcinogenicity

May cause cancer.

### **Reproductive toxicity**

May damage fertility or the unborn child.

### **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.

### **Aspiration hazard**

Based on available data, the classification criteria are not met.

## **11.2. Information on other hazards**

### **Long term effects**

**Carcinogenic effects:** This product contains substances considered or proven to be carcinogenic. The carcinogenic effects may be triggered subsequent to exposure through inhalation, skin contact or ingestion.

**Reproductive toxicity:** This product contains teratogenic substances, which may produce anomalies and/or developmental defects to the human offspring. Adverse effects include: death, growth retardation, congenital disorders, delayed mental development, and functional disorders. This product contains reprotoxic substances, which may harm the reproductive capacity. Adverse effects include: sterility, effects on the sexual function, lowered effective fertility and dysfunctional menstrual cycle.

### **Endocrine disrupting properties**

This mixture/product does not contain any substances known to have hormone-disrupting properties in relation to health.

### **Other information**

Cobalt (II) citrate has been classified by IARC as a group 2B carcinogen.

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## **SECTION 12: ECOLOGICAL INFORMATION**

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### **12.1. Toxicity**

Toxic to aquatic life with long lasting effects.

### **12.2. Persistence and degradability**

Based on available data, the classification criteria are not met.

### **12.3. Bioaccumulative potential**

Based on available data, the classification criteria are not met.

### **12.4. Mobility in soil**

No data available.

### **12.5. Results of PBT and vPvB assessment**

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

### **12.6. Endocrine disrupting properties**

This mixture/product does not contain any substances considered to have endocrine-disrupting properties in relation to the environment.

### 12.7. Other adverse effects

This product contains substances that are toxic to the environment. May result in adverse effects to aquatic organisms.

This product contains substances, which may cause adverse long-term effects to the aquatic environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Product is covered by the regulations on hazardous waste. (\*)

HP 6 - Acute toxicity

HP 7 - Carcinogenic

HP 12 - Release of an acute toxic gas

HP 14 - Ecotoxic

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

Commission Regulation (EU) No 1357/2014 of 18 December 2014 on waste.

*EWG code:*

11

WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY

11 01

Wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)

11 01 98\*

Other wastes containing dangerous substances

### Specific labelling

Not applicable.







### Contaminated packing

Packaging containing residues of the product must be disposed of similarly to the product.

## SECTION 14: TRANSPORT INFORMATION

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
ADR	UN3287	TOXIC LIQUID, INORGANIC, N.O.S. (Potassium dicyanoargentate(1), Cobalt (II) citrate)	Transport hazard class: 6.1 Label: 6.1 Classification code: T4	III	Yes	Limited quantities: 5 L Tunnel restriction

According to EC-Regulation 1907/2006 (REACH), annex II, including changes implemented by EC-Regulation 2020/878

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other informat ion:
			 			n code: (E) See below for additiona l informati on.
IMDG	UN3287	TOXIC LIQUID, INORGANIC, N.O.S. (Potassium dicyanoargentate(1), Cobalt (II) citrate)	Transport hazard class: 6.1 Label: 6.1 Classification code: T4  	III	Yes	Limited quantitie s: 5 L EmS: F-A S-A See below for additiona l informati on.
IATA	UN3287	TOXIC LIQUID, INORGANIC, N.O.S. (Potassium dicyanoargentate(1), Cobalt (II) citrate)	Transport hazard class: 6.1 Label: 6.1 Classification code: T4  	III	Yes	See below for additiona l informati on.

\* Packing group

\*\* Environmental hazards

### Additional information

This product is within scope of the regulations of transport of dangerous goods.

ADR / See Table A, section 3.2.1 for any information on special provisions, requirements, or warnings in connection with transport. See section 5.4.3, for instructions in writing regarding mitigation of damages in relation to incidents or accidents during transport.

IMDG / See section 3.2.1, for any information on special provisions, requirements, or warnings in connection with transport.

IATA / See Table 4.2 for any information on special provisions, requirements, or warnings in connection with transport.

### 14.6. Special precautions for user

Not applicable.

### 14.7. Maritime transport in bulk according to IMO instruments

No data available.

## SECTION 15: REGULATORY INFORMATION

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

*Restrictions for application:*

Restricted to professional users.  
People under the age of 18 shall not be exposed to this product.  
Pregnant women and women breastfeeding must not be exposed to this product. The risk, and possible technical precautions or design of the workplace needed to eliminate exposure, must be considered.

*Demands for specific education:*

No specific requirements.

*SEVESO - Categories / dangerous substances:*

H2 - ACUTE TOXIC, Qualifying quantity (lower-tier): 50 tonnes / (upper-tier): 200 tonnes  
E2 - ENVIRONMENTAL HAZARDS, Qualifying quantity (lower-tier): 200 tonnes / (upper-tier): 500 tonnes

*Additional information:*

Not applicable.

*Sources:*

The Danish Working Environment Authority's executive order no. 1049 of 30 May 2021 on young people's work. Based on Council Directive 94/33 / EC of 22 June 1994 on the protection of young people at work.  
Pregnant workers and workers who are breastfeeding (AT Guide A.1.8-6, amended 2024).  
Executive Order no. 372 of 25 April 2016 on control of the risk of major accidents with dangerous substances.  
Commission Regulation (EU) No 1357/2014 of 18 December 2014 on waste.  
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (CLP).  
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

### 15.2. Chemical safety assessment

No

## SECTION 16: OTHER INFORMATION

### Full text of H-phrases as mentioned in section 3

- EUH032, Contact with acids liberates very toxic gas.
- EUH071, Corrosive to the respiratory tract.
- H290, May be corrosive to metals.
- H300, Fatal if swallowed.
- H302, Harmful if swallowed.
- H310, Fatal in contact with skin.
- H314, Causes severe skin burns and eye damage.
- H317, May cause an allergic skin reaction.
- H318, Causes serious eye damage.
- H330, Fatal if inhaled.
- H334, May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H341, Suspected of causing genetic defects.
- H350, May cause cancer.
- H360, May damage fertility or the unborn child.
- H400, Very toxic to aquatic life.
- H410, Very toxic to aquatic life with long lasting effects.
- H411, Toxic to aquatic life with long lasting effects.

### Abbreviations and acronyms

- ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- CAS = Chemical Abstracts Service
- CE = Conformité Européenne (European conformity)
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- CSA = Chemical Safety Assessment
- CSR = Chemical Safety Report
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EINECS = European Inventory of Existing Commercial chemical Substances
- ES = Exposure Scenario
- EUH statement = CLP-specific Hazard statement
- EuPCS = European Product Categorisation System
- EWC = European Waste Catalogue
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- GWP = Global warming potential
- IARC = International Agency for Research on Cancer (IARC)
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
OECD = Organisation for Economic Co-operation and Development  
PBT = Persistent, Bioaccumulative and Toxic  
PNEC = Predicted No Effect Concentration  
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
RRN = REACH Registration Number  
SCL = A specific concentration limit  
SVHC = Substances of Very High Concern  
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure  
STOT-SE = Specific Target Organ Toxicity - Single Exposure  
TWA = Time weighted average  
UN = United Nations  
UVBC = Unknown or variable composition, complex reaction products or of biological materials  
VOC = Volatile Organic Compound  
vPvB = Very Persistent and Very Bioaccumulative

### **Additional information**

The classification of the mixture in regard of health hazards is in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP).  
The classification of the substance/mixture in regard of environmental hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP).

### **The safety data sheet is validated by**

Aktiv Guld A/S

### **Other**

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a triangle.  
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.  
It is recommended to hand over this safety data sheet to the actual user of the product.  
Information in this safety data sheet cannot be used as a product specification.  
Country-language: DK-en