

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date: 03.07.2018

Version number 4

Revision: \_\_\_\_\_ 03.07.2018

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

· **1.1 Product identifier**

· **Trade name:** Pre silver bath VS 60 ( 2 - 3 g/l Ag )

Vorversilberung VS 60 ( 2 - 3 g/l Ag )

· **Article number:**

86909000 = 2g/l Ag

86909020 = 3 g/l Ag

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**

Not approved for private consumers.

· **Application of the substance / the mixture** Galvanic bath

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Heimerle + Meule GmbH  
Dennigstrasse 16  
D-75179 Pforzheim

Telefon +49 (0) 7231 940-0  
Telefax +49 (0) 7231 940-2199

www.heimerle-meule.com

· **Further information obtainable from:**

Abteilung BASU - Bau/Arbeitssicherheit/Umwelt  
sds@heimerle-meule.com

IATA - 24h Emergency Contact -  
(Gefahrgut-Notrufnummer)  
+49 172 739 6970

· **1.4 Emergency telephone number:**

Vergiftungs-Informations-Zentrale Freiburg, ++49 761 19240 (24 h)

**SECTION 2: Hazards identification**

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS06 skull and crossbones

Acute Tox. 2      H300 Fatal if swallowed.  
Acute Tox. 2      H310 Fatal in contact with skin.  
Acute Tox. 2      H330 Fatal if inhaled.

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GHS08 health hazard

STOT RE 2

H373 May cause damage to organs through prolonged or repeated exposure.



GHS09 environment

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

· **2.2 Label elements**· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**

GHS06



GHS08



GHS09

· **Signal word Danger**· **Hazard-determining components of labelling:**

Potassium cyanide

potassium dicyanoargentate

· **Hazard statements**

H300+H310+H330 Fatal if swallowed, in contact with skin or if inhaled.

H373 May cause damage to organs through prolonged or repeated exposure.

H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P273 Avoid release to the environment.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P330 Rinse mouth.

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

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.

· **2.3 Other hazards**· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

· **3.2 Chemical characterisation: Mixtures**· **Description:** Mixture of substances listed below with nonhazardous additions.

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**· Dangerous components / Information on ingredients:**

CAS: 151-50-8 EINECS: 205-792-3 Index number: 006-007-00-5 RTECS: TS 8760000 Reg.nr.: 01-2119486407-29-xxxx	<b>Potassium cyanide</b> Acute Tox. 1, H300; Acute Tox. 1, H310; Acute Tox. 1, H330 STOT RE 1, H372 Met. Corr.1, H290 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	≥7–<10%
CAS: 506-61-6 EINECS: 208-047-0 Index number: 006-007-00-5	<b>potassium dicyanoargentate</b> Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330 Eye Dam. 1, H318 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Skin Irrit. 2, H315	0.25–0.5%

**· Additional information:** For the wording of the listed hazard phrases refer to section 16.

## 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.

Personal protection for the First Aider.

Take affected persons out of danger area and lay down.

Involve doctor immediately after a accident or unwell

#### · After inhalation:

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

#### · 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.

Call a doctor immediately.

Do not induce vomiting; call for medical help immediately.

Drink plenty of water and provide fresh air. Call for a doctor immediately.

A person vomiting while laying on their back should be turned onto their side.

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

Cyanides poisoning

Cyanosis

#### · Information for doctor: Cyanides poisoning

### · 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:

CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

#### · For safety reasons unsuitable extinguishing agents: Water with full jet

### · 5.2 Special hazards arising from the substance or mixture

Under certain fire conditions, traces of other toxic gases cannot be excluded, e.g.:

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*Hydrogen cyanide (HCN)*

- **5.3 Advice for firefighters**
- **Protective equipment:**



Wear self-contained respiratory protective device.

- **Additional information**

*Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.*

### SECTION 6: Accidental release measures

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

*Avoid formation of dust.**Mount respiratory protective device.**Wear protective equipment. Keep unprotected persons away.**Use respiratory protective device against the effects of fumes/dust/aerosol.**Only handle and refill product in closed systems.*

- **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.**Dilute with plenty of water.**Do not allow to enter sewers/ surface or ground water.*

- **6.3 Methods and material for containment and cleaning up:**

*Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).**Dispose contaminated material as waste according to item 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**

*Keep receptacles tightly sealed.**Ensure good ventilation/exhaustion at the workplace.**Open and handle receptacle with care.**the usual precautionary measures are to be adhered to when handling chemicals.**Prevent formation of aerosols.**Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.**Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.*

- **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 unopened original receptacles.**Observe official regulations on storing packagings .**Observe official regulations on storing packagings .**Prevent any seepage into the ground.*

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· **Information about storage in one common storage facility:**

Do not store together with acids.  
Store away from foodstuffs.

· **Further information about storage conditions:**

Keep container tightly sealed.



Store under lock and key and with access restricted to technical experts or their assistants only.

Store under lock and key and out of the reach of children.

· **Storage class: 6.1 B**

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

**SECTION 8: Exposure controls/personal protection**

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

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

**CAS: 151-50-8 Potassium cyanide**

WEL (Great Britain)	Long-term value: 5 mg/m <sup>3</sup> as CN; Sk
IOELV (European Union)	Short-term value: 5 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup> Skin; as cyanide
AGW (Germany)	Long-term value: 1 E mg/m <sup>3</sup> 5(II);EU, H, Y

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

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

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.

Do not inhale gases / fumes / aerosols.

According to EC Directive 89/686/EEC

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Beware: Filter masks provide protection for a short period of time only. They should only be used in exceptional cases, that is if a small amount of the substance has spilled out or in order to fight spillages and fire.

according EN 14387

according to EN 143

· **Recommended filter device for short term use:** Combination filter B-P2

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· **Protection of hands:**



Protective gloves

according to EN 374

To avoid skin problems reduce the wearing of gloves to the required minimum.

Only use chemical-protective gloves with CE-labelling of category III.

Sensibilisation by the components in the glove materials is possible.

Check the permeability prior to each anewed use of the glove.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Prior to working with gloves the rubbing in with tanniferous skin-protecting agents for the avoidance of skin softening due to perspiration is recommended.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

The determined penetration times according to EN 374 part III are not performed under practical conditions.

Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

For the mixture of chemicals mentioned below the penetration time has to be at least 480 minutes (Permeation according to EN 374 Part 3: Level 3).

Value for the permeation: Level  $\leq 3$

· **Not suitable are gloves made of the following materials:**

Leather gloves

Strong material gloves

· **Eye protection:**



Tightly sealed goggles

according to EN 166

· **Body protection:** Protective work clothing

**SECTION 9: Physical and chemical properties**

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:

Fluid

Colour:

Colourless

· **Odour:**

Like bitter almonds

· **Odour threshold:**

Not determined.

· **pH-value at 20°C (68°F):**

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- |  |   |
|--|---|
| <b>· Change in condition</b>                     |   |
| <b>Melting point/freezing point:</b>             | Undetermined.                                 |
| <b>Initial boiling point and boiling range:</b>  | 100°C (212°F)                                 |
| <b>· Flash point:</b>                            | Not applicable.                               |
| <b>· Flammability (solid, gas):</b>              | Not applicable.                               |
| <b>· Decomposition temperature:</b>              | Not determined.                               |
| <b>· Auto-ignition temperature:</b>              | Product is not selfigniting.                  |
| <b>· Explosive properties:</b>                   | Product does not present an explosion hazard. |
| <b>· Explosion limits:</b>                       |   |
| <b>Lower:</b>                                    | Not determined.                               |
| <b>Upper:</b>                                    | Not determined.                               |
| <b>· Vapour pressure:</b>                        | Not determined.                               |
| <b>· Density at 20°C (68°F):</b>                 | 1.11 g/cm <sup>3</sup> (9.26 lbs/gal)         |
| <b>· Relative density</b>                        | Not determined.                               |
| <b>· Vapour density</b>                          | Not determined.                               |
| <b>· Evaporation rate</b>                        | Not determined.                               |
| <b>· Solubility in / Miscibility with water:</b> | Fully miscible.                               |
| <b>· Partition coefficient: n-octanol/water:</b> | Not determined.                               |
| <b>· Viscosity:</b>                              |   |
| <b>Dynamic:</b>                                  | Not determined.                               |
| <b>Kinematic:</b>                                | Not determined.                               |
| <b>· 9.2 Other information</b>                   | No further relevant information available.    |

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**  
Contact with acids releases very toxic gases  
Reacts with acids, alkalis and oxidising agents.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** Acids
- **10.6 Hazardous decomposition products:** Hydrogen cyanide (prussic acid)

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**  
Fatal if swallowed, in contact with skin or if inhaled.

**· LD/LC50 values relevant for classification:**

**ATE (Acute Toxicity Estimates)**

Oral	LD50	49.7 mg/kg
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Dermal	LD50	51.1 mg/kg
Inhalative	LC50/4 h	0.51 mg/l

**CAS: 151-50-8 Potassium cyanide**

Oral	LD50	5 mg/kg (Rat)
Dermal	LD50	5 mg/kg (ATE)
Inhalative	LC50/4 h	0.05 mg/l (ATE)

**CAS: 506-61-6 potassium dicyanoargentate**

Oral	LD50	5 mg/kg (ATE)
Dermal	LD50	20.9 mg/kg (Rat)
Inhalative	LC50/4 h	0.5 mg/l (ATE)

- **Primary irritant effect:**
- **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 or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **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**  
May cause damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **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.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**  
At present there are no ecotoxicological assessments.  
Water hazard class 3 (German Regulation) (Self-assessment): 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.  
Also poisonous for fish and plankton in water bodies.  
Toxic for aquatic organisms
- **12.5 Results of PBT and vPvB assessment** Not applicable.
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

GB

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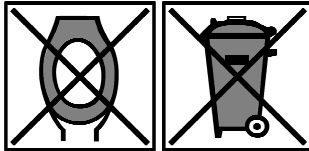
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### SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
- Recommendation



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

Contact manufacturer for recycling information.

- **Waste disposal key:**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

- **European waste catalogue**

There are no uniform EC regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste

11 00 00	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY
11 01 00	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 hazardous substances
HP 5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP 6	Acute Toxicity
HP 12	Release of an acute toxic gas
HP 14	Ecotoxic

- **Uncleaned packaging:**

- **Recommendation:**

Disposal must be made according to official regulations.

Packaging which is uncleaned or soiled with product remains is to be treated like the product itself

Packaging free of product remains is to be supplied refuse for recycling. Only if no adequate collecting system is available, they may be disposed of through the domestic rubbish

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

### SECTION 14: Transport information

- 14.1 UN-Number

- ADR, IMDG, IATA

UN1935

- 14.2 UN proper shipping name

- ADR

UN1935 CYANIDE SOLUTION, N.O.S. (POTASSIUM CYANIDE, potassium dicyanoargentate), ENVIRONMENTALLY HAZARDOUS

- IMDG

CYANIDE SOLUTION, N.O.S. (POTASSIUM CYANIDE, potassium dicyanoargentate), MARINE POLLUTANT

- IATA

CYANIDE SOLUTION, N.O.S. (POTASSIUM CYANIDE, potassium dicyanoargentate)

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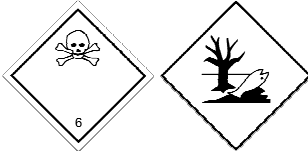
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· **14.3 Transport hazard class(es)**

· **ADR, IMDG**



· **Class** 6.1 Toxic substances.  
· **Label** 6.1

· **IATA**



· **Class** 6.1 Toxic substances.  
· **Label** 6.1

· **14.4 Packing group**

· **ADR, IMDG, IATA** II

· **14.5 Environmental hazards:**

Product contains environmentally hazardous substances:  
Potassium cyanide

· **Marine pollutant:**

Yes  
Symbol (fish and tree)

· **Special marking (ADR):**

Symbol (fish and tree)

· **14.6 Special precautions for user**

Warning: Toxic substances.

· **Danger code (Kemler):**

60

· **EMS Number:**

F-A,S-A

· **Segregation groups**

Cyanides

· **Stowage Category**

A

· **Stowage Code**

SW2 Clear of living quarters.

· **Segregation Code**

SG35 Stow "separated from" acids.

· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **ADR**

· **Limited quantities (LQ)**

100 ml

· **Excepted quantities (EQ)**

Code: E4

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 500 ml

· **Transport category**

2

· **Tunnel restriction code**

D/E

· **IMDG**

· **Limited quantities (LQ)**

100 ml

· **Excepted quantities (EQ)**

Code: E4

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 500 ml

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· **IATA**· **Remarks:**

24h Emergency Contact -  
(Gefahrgut-Notrufnummer)

+49 172 739 6970

· **UN "Model Regulation":**

UN 1935 CYANIDE SOLUTION, N.O.S. (POTASSIUM  
CYANIDE, POTASSIUM DICYANOARGENTATE), 6.1, II,  
ENVIRONMENTALLY HAZARDOUS

### SECTION 15: Regulatory information

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

COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

DIRECTIVE 2012/18/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC

· **Directive 2012/18/EU**· **Named dangerous substances - ANNEX I** None of the ingredients is listed.· **Seveso category**

H2 ACUTE TOXIC

E2 Hazardous to the Aquatic Environment

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3· **National regulations:**· **Technical instructions (air):**

Class	Share in %
I	0.4

· **Waterhazard class:** Water hazard class 3 (Self-assessment): extremely hazardous for water.· **Other regulations, limitations and prohibitive regulations -**· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not 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.

· **Reasons for revise**

If necessary, this safety data sheet can be revised according to legal guidelines.

Our current version for your reference is available on our website

[www.heimerle-meule.com](http://www.heimerle-meule.com)

· **Date from last issue :** 06.03.2018

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· **Relevant phrases**

H290 May be corrosive to metals.  
H300 Fatal if swallowed.  
H310 Fatal in contact with skin.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H330 Fatal if inhaled.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

· **Department issuing SDS:**

Department BASU - Bau/Arbeitssicherheit/Umwelt

sds@heimerle-meule.com

· **Contact:**

Herr Thomas Knuth  
Knuth@heimerle-meule.com  
sds@heimerle-meule.com

· **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)  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organisation  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)  
ADR: Accord européen sur le transport 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  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Met. Corr.1: Corrosive to metals – Category 1  
Acute Tox. 1: Acute toxicity – Category 1  
Acute Tox. 2: Acute toxicity – Category 2  
Skin Irrit. 2: Skin corrosion/irritation – Category 2  
Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1  
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2  
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  
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· **\* Data compared to the previous version altered.**