

## Safety Data Sheet

### PLANISEAL VS PART B

Safety Data Sheet dated: 06/16/2021 - version 8

Date of first edition: 05/26/2015



## 1. IDENTIFICATION

### Product identifier

Mixture identification:

Trade name: PLANISEAL VS PART B

Trade code: 2814

### Recommended use of the chemical and restrictions on use

Recommended use: Hardener for epoxy products

Restrictions on use: N.A.

### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Company: MAPEI CORP. (USA and Puerto Rico)

1144 East Newport Center Drive

33442 - Deerfield Beach - FL - USA

Responsible: RDProductSafety@mapei.com

### Emergency 24 hour numbers:

Emergency Number (USA/Canada) CHEMTREC 1(800) 424-9300 / 1(703) 527-3887

Emergency Transport CANUTEC (Canada) 1-613-996-6666

## 2. HAZARD(S) IDENTIFICATION



### Classification of the chemical

|                   |   |
|-------------------|---|
| Acute Tox. 4      | Harmful if swallowed.   |
| Skin Corr. 1B     | Causes severe skin burns and eye damage.  |
| Eye Dam. 1        | Causes serious eye damage.  |
| Skin Sens. 1A     | May cause an allergic skin reaction.  |
| Repr. 1B          | May damage fertility. May damage the unborn child.                              |
| STOT RE 2         | May cause damage to organs through prolonged or repeated exposure if swallowed. |
| Aquatic Chronic 3 | Harmful to aquatic life with long lasting effects.                              |

### Label elements

#### Pictograms and Signal Words



Danger

### Hazard statements:

|        |   |
|--------|---|
| H302   | Harmful if swallowed.   |
| H314   | Causes severe skin burns and eye damage.  |
| H317   | May cause an allergic skin reaction.  |
| H318   | Causes serious eye damage.  |
| H360FD | May damage fertility. May damage the unborn child.                              |
| H373   | May cause damage to organs through prolonged or repeated exposure if swallowed. |
| H412   | Harmful to aquatic life with long lasting effects.                              |

### Precautionary statements:

|      |   |
|------|---|
| P201 | Obtain special instructions before use.                                   |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P260 | Do not breathe mist/vapours/spray.  |
| P264 | Wash skin thoroughly after handling.                                      |
| P270 | Do not eat, drink or smoke when using this product.                       |
| P272 | Contaminated work clothing should not be allowed out of the workplace.    |

|                |  |
|----------------|--|
| P273           | Avoid release to the environment.  |
| P280           | Wear protective gloves/protective clothing/eye protection/face protection.   |
| P301+P312      | IF SWALLOWED: Call a POISON CENTER if you feel unwell.   |
| P301+P330+P331 | IF SWALLOWED: rinse mouth. Do NOT induce vomiting.   |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.                              |
| P304+P340      | IF INHALED: Remove person to fresh air and keep comfortable for breathing.   |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308+P313      | IF exposed or concerned: Get medical advice/attention.   |
| P310           | Immediately call a POISON CENTER.  |
| P321           | Specific treatment (see supplementary instructions on this label).   |
| P333+P313      | If skin irritation or rash occurs: Get medical advice/attention.   |
| P362+P364      | Take off contaminated clothing and wash it before reuse.   |
| P405           | Store locked up.   |
| P501           | Dispose of contents/container in accordance with applicable regulations.   |

**Ingredient(s) with unknown acute toxicity:**

None

**Hazards not otherwise classified identified during the classification process:**

None

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substances**

N.A.

**Mixtures**

Hazardous components within the meaning of 29 CFR 1910.1200 and related classification:

**List of components**

| Concentration<br>(% w/w) | Name  | Ident. Numb.    | Classification   | Registration Number |
|--------------------------|---|-----------------|--|---------------------|
| 25-50 %                  | Isophorone diamine                                      | CAS:2855-13-2   | Skin Corr. 1B, H314; Skin Sens. 1, H317; Aquatic Chronic 3, H412; Acute Tox. 4, H302; Acute Tox. 4, H312 |                     |
| 20-25 %                  | Benzyl alcohol  | CAS:100-51-6    | Acute Tox. 4, H302; Acute Tox. 4, H332; Eye Irrit. 2A, H319  |                     |
| 10-20 %                  | 2,4,6-Tri(dimethylaminomethyl)phenol                    | CAS:90-72-2     | Skin Corr. 1B, H314; Skin Sens. 1A, H317; Aquatic Chronic 3, H412  |                     |
| 5-10 %                   | Bisphenol A epoxy resin                                 | CAS:25085-99-8  | Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Aquatic Chronic 2, H411; Skin Sens. 1B, H317                   |                     |
| 5-10 %                   | Triethylene tetramine                                   | CAS:112-24-3    | Skin Sens. 1, H317; Aquatic Chronic 3, H412; Acute Tox. 4, H312; Acute Tox. 4, H302; Skin Corr. 1B, H314 |                     |
| 2.5-5 %                  | Copolymer of Benzenamine and Formaldehyde, Hydrogenated | CAS:135108-88-2 | Acute Tox. 4, H302; STOT RE 2, H373; Aquatic Chronic 3, H412; Skin Corr. 1C, H314; Skin Sens. 1, H317    |                     |
| 2.5-5 %                  | Aminoethylpiperazine                                    | CAS:140-31-8    | Acute Tox. 3, H311; Skin Corr. 1B, H314; Skin Sens. 1, H317; Eye Dam. 1, H318; Repr. 1B, H360            |                     |
| 1-2.5 %                  | Bis[(dimethylamino)methyl]phenol                        | CAS:71074-89-0  | Skin Corr. 1B, H314  |                     |

### 4. FIRST AID MEASURES

**Description of first aid measures**

In case of skin contact:

Immediately take off all contaminated clothing.

OBTAIN IMMEDIATE MEDICAL ATTENTION.

Obtain medical attention if skin related symptoms persist.  
Remove contaminated clothing immediately and dispose of safely.  
After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Give nothing to eat or drink.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

**Most important symptoms/effects, acute and delayed**

Eye irritation

Eye damages

Skin Irritation

Erythema

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

(see paragraph 4.1)

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## 5. FIRE-FIGHTING MEASURES

### Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO<sub>2</sub>).

### Unsuitable extinguishing media:

None in particular.

### Specific hazards arising from the chemical

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

Hazardous combustion products: N.A.

Explosive properties: N.A.

Oxidizing properties: N.A.

### Special protective equipment and precautions for fire-fighters

Use suitable breathing apparatus.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Limit leakages with earth or sand.

### Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Retain contaminated washing water and dispose it.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Exercise the greatest care when handling or opening the container.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

### Conditions for safe storage, including any incompatibilities

Storage temperature: N.A.

Keep away from food, drink and feed.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### List of components with OEL value

| Component      | OEL Type | Country     | Ceiling | Long Term mg/m3 | Long Term ppm | Short Term mg/m3 | Short Term ppm | Behaviour | Note |
|----------------|----------|-------------|---------|-----------------|---------------|------------------|----------------|-----------|------|
| Benzyl alcohol | MAK      | GERMANY     |         | 22              | 5             |                  |                |           |      |
|                | MAK      | SWITZERLAND |         | 22              | 5             |                  |                |           |      |

Appropriate engineering controls: N.A.

### Individual protection measures

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Suitable materials for safety gloves; 29 CFR 1910.138 - ANSI/ISEA 105:

Polychloroprene - CR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Nitrile rubber - NBR: thickness  $\geq 0,35\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Butyl rubber - IIR: thickness  $\geq 0,5\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Fluorinated rubber - FKM: thickness  $\geq 0,4\text{mm}$ ; breakthrough time  $\geq 480\text{min}$ .

Use impervious gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Respiratory protection:

Respiratory protection must be used where exposure levels exceed workplace exposure limits. Refer to 29 CFR 1910.134 - CSA Z94.4 for information on selection and use of appropriate respiratory protection equipment.

Use adequate protective respiratory equipment.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Physical state: Liquid

Appearance and colour: liquid Amber

Odour: Like: Amines

Odour threshold: No data available

pH: No data available

Melting point / freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point: 94 °C (201 °F)

Evaporation rate: No data available

Upper/lower flammability or explosive limits: No data available

Vapour density: No data available

Vapour pressure: No data available

Relative density: 1.00 g/cm<sup>3</sup>

Solubility in water: Insoluble

Solubility in oil: No data available

Partition coefficient (n-octanol/water): No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing properties: No data available

Solid/gas flammability: No data available

### Other information

Substance Groups relevant properties No data available

Miscibility: No data available

Fat Solubility: No data available

**10. STABILITY AND REACTIVITY****Reactivity**

Stable under normal conditions

**Chemical stability**

Data not available.

**Possibility of hazardous reactions**

None.

**Conditions to avoid**

Stable under normal conditions.

**Incompatible materials**

None in particular.

**Hazardous decomposition products**

None.

**11. TOXICOLOGICAL INFORMATION****Information on toxicological effects****Toxicological information of the mixture:**

There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture.

**Toxicological information on main components of the mixture:**

|                                      |                   |   |
|--------------------------------------|-------------------|---|
| Isophorone diamine                   | a) acute toxicity | LD50 Oral Rat = 1030 mg/kg<br>LD50 Skin Rat > 2000 mg/kg<br>LD50 Oral Rat = 1030 mg/kg  |
| Benzyl alcohol                       | a) acute toxicity | LD50 Skin Rabbit = 2000,00000 mg/kg<br>LC50 Inhalation Rat = 8,80000 mg/l 4h<br>LD50 Oral Rat = 1230 mg/kg<br>LD50 Skin Rabbit = 2 g/kg<br>LD50 Oral Rat = 1230 mg/kg |
| 2,4,6-Tri(dimethylaminomethyl)phenol | a) acute toxicity | LD50 Skin Rat = 1280 mg/kg<br><br>LD50 Oral Rat = 1000 mg/kg<br>LD50 Skin Rat = 1280 mg/kg<br>LD50 Oral Rat = 1200 mg/kg  |
| Triethylene tetramine                | a) acute toxicity | LD50 Skin Rabbit = 550 mg/kg<br>LD50 Oral Rat = 2500 mg/kg<br>LD50 Skin Rabbit = 550 mg/kg<br>LD50 Oral Rat = 2500 mg/kg  |
| Aminoethylpiperazine                 | a) acute toxicity | LD50 Skin Rabbit = 880 µL/kg<br>LD50 Oral Rat = 2140 mg/kg<br>LD50 Oral Rat = 2140 µL/kg<br>LD50 Skin Rabbit = 880 µL/kg  |

**If not differently specified, the information required in the regulation and listed below must be considered as N.A.**

- a) acute toxicity
- b) skin corrosion/irritation
- c) serious eye damage/irritation
- d) respiratory or skin sensitisation
- e) germ cell mutagenicity

- f) carcinogenicity
- g) reproductive toxicity
- h) STOT-single exposure
- Toxicological kinetics, metabolism and distribution information
- i) STOT-repeated exposure
- j) aspiration hazard

**Substance(s) listed on the IARC Monographs:**

None

**Substance(s) listed as OSHA Carcinogen(s):**

None

**Substance(s) listed as NIOSH Carcinogen(s):**

None

**Substance(s) listed on the NTP report on Carcinogens:**

None

## 12. ECOLOGICAL INFORMATION

### Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

**List of components with eco-toxicological properties**

| Component   | Ident. Numb.     | Ecotox Infos  |
|---|------------------|---|
| Isophorone diamine                                      | CAS: 2855-13-2   | a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna 14,60000 mg/L 48h EPA<br><br>a) Aquatic acute toxicity : EC50 Daphnia magna = 42,00000 mg/L - 24hr<br>a) Aquatic acute toxicity : EC50 Algae Desmodesmus subspicatus = 37 mg/L 72h IUCLID  |
| Benzyl alcohol  | CAS: 100-51-6    | a) Aquatic acute toxicity : EC50 Algae idus = 110,00000 mg/L 96h<br>a) Aquatic acute toxicity : LC50 Fish Pimephales promelas = 460 mg/L 96h EPA<br><br>a) Aquatic acute toxicity : LC50 Fish Lepomis macrochirus = 10 mg/L 96h EPA<br>a) Aquatic acute toxicity : EC50 Daphnia water flea = 23 mg/L 48h  |
| Triethylene tetramine                                   | CAS: 112-24-3    | a) Aquatic acute toxicity : LC50 Fish Poecilia reticulata = 570 mg/L 96h IUCLID<br><br>a) Aquatic acute toxicity : LC50 Fish Pimephales promelas = 495 mg/L 96h IUCLID<br><br>a) Aquatic acute toxicity : EC50 Algae Desmodesmus subspicatus = 2,50000 mg/L 72h IUCLID<br><br>a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 20 mg/L 72h IUCLID<br><br>a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 3,70000 mg/L 96h EPA<br><br>a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna = 31,1 mg/L 48h IUCLID |
| Copolymer of Benzenamine and Formaldehyde, Hydrogenated | CAS: 135108-88-2 | a) Aquatic acute toxicity : LC50 Fish Poecilia reticulata = 63 mg/L 96h ECHA  |
| Aminoethylpiperazine                                    | CAS: 140-31-8    | a) Aquatic acute toxicity : LC50 Fish Pimephales promelas 1950 mg/L 96h EPA<br>a) Aquatic acute toxicity : LC50 Fish Poecilia reticulata > 1000 mg/L 96h IUCLID<br><br>a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss >= 100 mg/L 96h IUCLID<br><br>a) Aquatic acute toxicity : EC50 Daphnia Daphnia magna = 32 mg/L 48h   |

a) Aquatic acute toxicity : EC50 Algae *Pseudokirchneriella subcapitata* = 495 mg/L 72h IUCLID

**Persistence and degradability**

N.A.

**Bioaccumulative potential**

N.A.

**Mobility in soil**

N.A.

**Other adverse effects**

N.A.

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**13. DISPOSAL CONSIDERATIONS****Waste treatment methods**

The generation of waste should be avoided or minimized wherever possible. Recover if possible.

**Methods of disposal:**

Disposal of this product, solutions, packaging and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor.

Do not dispose of waste into sewers.

**Disposal considerations:**

Do not allow to enter drains or watercourses.

Dispose of product according to all federal, state and local applicable regulations.

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.

Dispose of containers contaminated by the product in accordance with local or national legal provisions. For further information, contact your local waste authority.

**Special precautions:**

This material and its container must be disposed of in a safe way. Care should be taken when handling untreated empty containers.

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty containers or liners may retain some product residues. Do not re-use empty containers.

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**14. TRANSPORT INFORMATION****UN number**

ADR-UN number: 2735

DOT-UN Number: UN2735

IATA-Un number: 2735

IMDG-Un number: 2735

**UN proper shipping name**

ADR-Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (Isophorone diamine - 2,4,6-Tri(dimethylaminomethyl)phenol)

DOT-Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (Isophorone diamine - 2,4,6-Tri(dimethylaminomethyl)phenol)

IATA-Technical name: AMINES, LIQUID, CORROSIVE, N.O.S. (Isophorone diamine - 2,4,6-Tri(dimethylaminomethyl)phenol)

IMDG-Technical name: AMINES, LIQUID, CORROSIVE, N.O.S. (Isophorone diamine - 2,4,6-Tri(dimethylaminomethyl)phenol)

**Transport hazard class(es)**

ADR-Class: 8

DOT-Hazard Class: 8

IATA-Class: 8

IMDG-Class: 8

**Packing group**

ADR-Packing Group: II

DOT-Packing group: II

IATA-Packing group: II

IMDG-Packing group: II

**Environmental hazards**

Marine pollutant: No

Environmental Pollutant: N.A.

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N.A.

### Special precautions

Department of Transportation (DOT):

DOT-Special Provision(s): B2, IB2, T11, TP1, TP27

DOT-Label(s): 8

DOT-Symbol: N/A

DOT-Cargo Aircraft: N/A

DOT-Passenger Aircraft: N/A

DOT-Bulk: N/A

DOT-Non-Bulk: N/A

Road and Rail (ADR-RID) :

ADR-Label: 8

ADR-Hazard identification number: 80

ADR-Transport category (Tunnel restriction code): 2 (E)

Air (IATA) :

IATA-Passenger Aircraft: 851

IATA-Cargo Aircraft: 855

IATA-Label: 8

IATA-Subsidiary hazards: -

IATA-Erg: 8L

IATA-Special Provisioning: A3 A803

Sea (IMDG) :

IMDG-Stowage Code: Category A

IMDG-Stowage Note: SG35 SGG18

IMDG-Subsidiary hazards: -

IMDG-Special Provisioning: 274

IMDG-Page: N/A

IMDG-Label: N/A

IMDG-EMS: F-A, S-B

IMDG-MFAG: N/A

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## 15. REGULATORY INFORMATION

### USA - Federal regulations

#### TSCA - Toxic Substances Control Act

##### TSCA inventory:

All the components are listed on the TSCA inventory

##### TSCA listed substances:

Isophorone diamine is listed in TSCA Section 8b

Benzyl alcohol is listed in TSCA Section 8b

2,4,6-Tri(dimethylaminomethyl)phenol is listed in TSCA Section 8b

Bisphenol A epoxy resin is listed in TSCA Section 8b

Triethylene tetramine is listed in TSCA Section 8b

Copolymer of Benzenamine and Formaldehyde, Hydrogenated is listed in TSCA Section 8b

Aminoethylpiperazine is listed in TSCA Section 8b

#### SARA - Superfund Amendments and Reauthorization Act

##### Section 302 - Extremely Hazardous Substances:

No substances listed

##### Section 304 - Hazardous substances:

No substances listed

##### Section 313 - Toxic chemical list:

No substances listed

#### CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

##### Substance(s) listed under CERCLA:

No substances listed



## CAA - Clean Air Act

### CAA listed substances:

Benzyl alcohol is listed in CAA Section 112(b) - HON

## CWA - Clean Water Act

### CWA listed substances:

No substances listed

## USA - State specific regulations

### California Proposition 65

#### Substance(s) listed under California Proposition 65:

No substances listed

### Massachusetts Right to know

#### Substance(s) listed under Massachusetts Right to know:

Benzyl alcohol

Triethylene tetramine

Aminoethylpiperazine

### Pennsylvania Right to know

#### Substance(s) listed under Pennsylvania Right to know:

Benzyl alcohol

Triethylene tetramine

Aminoethylpiperazine

### New Jersey Right to know

#### Substance(s) listed under New Jersey Right to know:

Isophorone diamine

Triethylene tetramine

Aminoethylpiperazine

## Canada - Federal regulations

### DSL - Domestic Substances List

#### DSL Inventory:

All the substances are listed in the DSL.

### NDSL - Non Domestic Substances List

#### NDSL Inventory:

No substances listed

### NPRI - National Pollutant Release Inventory

#### Substances listed in NPRI:

No substances listed

## 16. OTHER INFORMATION

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### Additional classification information

NFPA Health: 3 = Serious

NFPA Flammability: 1 = Combustible if heated

NFPA Reactivity: 0 = Minimal

NFPA Special Risk: N.A.



NFPA

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. The information herein is presented in good faith and believed to be accurate as of the effective date given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

This document was prepared by a competent person who has received appropriate training.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This SDS cancels and replaces any preceding release.

| Code | Description                              |
|------|--|
| H302 | Harmful if swallowed.                    |
| H311 | Toxic in contact with skin.              |
| H312 | Harmful in contact with skin.            |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation.                  |

|        |   |
|--------|---|
| H317   | May cause an allergic skin reaction.  |
| H318   | Causes serious eye damage.  |
| H319   | Causes serious eye irritation.  |
| H332   | Harmful if inhaled.   |
| H360   | May damage fertility or the unborn child if inhaled, in contact with skin and if swallowed. |
| H360FD | May damage fertility. May damage the unborn child.  |
| H373   | May cause damage to organs through prolonged or repeated exposure.                          |
| H373   | May cause damage to organs through prolonged or repeated exposure if swallowed.             |
| H411   | Toxic to aquatic life with long lasting effects.  |
| H412   | Harmful to aquatic life with long lasting effects.  |

**Legend to abbreviations and acronyms used in the safety data sheet:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.  
 RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.  
 IMDG: International Maritime Code for Dangerous Goods.  
 IATA: International Air Transport Association.  
 IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).  
 ICAO: International Civil Aviation Organization.  
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).  
 GHS: Globally Harmonized System of Classification and Labeling of Chemicals.  
 CLP: Classification, Labeling, Packaging.  
 EINECS: European Inventory of Existing Commercial Chemical Substances.  
 INCI: International Nomenclature of Cosmetic Ingredients.  
 CAS: Chemical Abstracts Service (division of the American Chemical Society).  
 GefStoffVO: Ordinance on Hazardous Substances, Germany.  
 LC50: Lethal concentration, for 50 percent of test population.  
 LD50: Lethal dose, for 50 percent of test population.  
 DNEL: Derived No Effect Level.  
 PNEC: Predicted No Effect Concentration.  
 TLV: Threshold Limiting Value.  
 TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).  
 STEL: Short Term Exposure limit.  
 STOT: Specific Target Organ Toxicity.  
 WGK: German Water Hazard Class.  
 KSt: Explosion coefficient.

**Paragraphs modified from the previous revision:**

- 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
- 6. ACCIDENTAL RELEASE MEASURES
- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 9. PHYSICAL AND CHEMICAL PROPERTIES
- 14. TRANSPORT INFORMATION
- 16. OTHER INFORMATION