

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/22/2014

Reviewed on 01/22/2014

## 1 Identification

### · Product identifier

- Trade name: **Hardener B-Liquid**
- Article number: 30423
- Relevant identified uses of the substance or mixture and uses advised against No further relevant information available.
- Application of the substance / the mixture Hardening agent/ Curing agent

### · Details of the supplier of the safety data sheet

- Manufacturer/Supplier: AKEMI chemisch technische Spezialfabrik GmbH  
Lechstrasse 28  
D 90451 Nürnberg  
Tel. +49(0)911-642960  
Fax. +49(0)911-644456  
e-mail info@akemi.de
- Information department: Laboratory
- Emergency telephone number: Product Safety Department AKEMI chemisch technische Spezialfabrik GmbH  
Tel. +49(0)911-64296-59  
Reachable during the following office hours:  
Monday – Thursday from 07:30 a.m. to 16:30 p.m.  
Friday from 07:30 a.m. to 13:30 p.m.

## 2 Hazard(s) identification

### · Classification of the substance or mixture



GHS02 Flame

Org. Perox. CD H242 Heating may cause a fire.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

### · Classification according to Directive 67/548/EEC or Directive 1999/45/EC



Corrosive

Causes burns.



Harmful

Harmful if swallowed.



Oxidizing

May cause fire.

### · Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

### · Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

### · Label elements

#### · GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

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**Trade name: Hardener B-Liquid** (Contd. of page 1)

· Hazard pictograms



GHS02 GHS05 GHS07

· Signal word

Danger

· Hazard-determining components of labeling:

2-Butanone, peroxide  
methyl benzoate  
hydrogen peroxide solution

· Hazard statements

H242 Heating may cause a fire.  
H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

· Precautionary statements

- P101 If medical advice is needed, have product container or label at hand.
- P102 Keep out of reach of children.
- P103 Read label before use.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P220 Keep away from reducing agents, heavy metal compounds, acids and alkalis.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P405 Store locked up.
- P410 Protect from sunlight.
- P411+P235 Store at temperatures not exceeding 86°F. Keep cool.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· NFPA ratings (scale 0 - 4)



Health = 3  
Fire = 3  
Reactivity = 0

· HMS-ratings (scale 0 - 4)



The substance possesses oxidizing properties.

Health = 3  
Fire = 3  
Reactivity = 0

· **Other hazards**

· Results of PBT and vPvB assessment

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

**3 Composition/information on ingredients**

· **Chemical characterization: Mixtures**

- Description: Mixture of the substances listed below with nonhazardous additions.

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· Dangerous components:		
CAS: 1338-23-4 EINECS: 215-661-2	2-Butanone, peroxide C R34; Xn R22; O R7 Org. Perox. B, H241; Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Acute Tox. 4, H332; H227	25-50%
CAS: 93-58-3 EINECS: 202-259-7	methyl benzoate Xn R22 Acute Tox. 4, H302; H227	12.5-25%
CAS: 7722-84-1 EINECS: 231-765-0 Index number: 008-003-00-9	hydrogen peroxide solution C R35; Xn R20/22; O R8 R5 Ox. Liq. 1, H271; Skin Corr. 1A, H314; Acute Tox. 4, H302; Acute Tox. 4, H332	<12.5%
CAS: 78-93-3 EINECS: 201-159-0 Index number: 606-002-00-3	butanone Xi R36; F R11 R66-67 Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	1-5%

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

#### 4 First-aid measures

##### · Description of first aid measures

- General information: Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation: Take affected persons into fresh air and keep quiet. In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Immediately wash with water and soap and rinse thoroughly. Immediately rinse with water.
- After eye contact: Call a doctor immediately. Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Rinse out mouth and then drink plenty of water. Immediately call a doctor. Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- Information for doctor:
- Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed No further relevant information available.

#### 5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents: CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture Formation of toxic gases is possible during heating or in case of fire. In case of fire, the following can be released: Carbon monoxide (CO)
- Advice for firefighters
- Protective equipment: Wear self-contained respiratory protective device.

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**· Additional information**

Cool endangered receptacles with water spray.

**6 Accidental release measures****· Personal precautions, protective equipment and emergency procedures**

Keep away from ignition sources  
Wear protective equipment. Keep unprotected persons away.

**· Environmental precautions:**

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

**· Methods and material for containment and cleaning up:**

Send for recovery or disposal in suitable receptacles.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.

**· 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.

**\* 7 Handling and storage****· Handling:****· Precautions for safe handling**

Keep receptacles tightly sealed.  
Store in cool, dry place in tightly closed receptacles.  
Open and handle receptacle with care.  
Prevent formation of aerosols.  
Keep away from heat and direct sunlight.  
Do not refill residue into storage receptacles.  
Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.  
Ensure good ventilation/exhaustion at the workplace.

**· Information about protection against explosions and fires:**

Protect from heat.  
Protect against electrostatic charges.  
Prevent impact and friction.  
Use explosion-proof apparatus / fittings and spark-proof tools.  
Fumes can combine with air to form an explosive mixture.  
Wear shoes with conductive soles.  
Keep ignition sources away - Do not smoke.

**· Conditions for safe storage, including any incompatibilities****· Storage:****· Requirements to be met by storerooms and receptacles:**

Store only in the original receptacle.  
Store in a cool location.  
Prevent any seepage into the ground.

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

Store away from reducing agents.  
Do not store together with reducing agents, heavy-metal compounds, acids and alkalis.

**· Further information about storage conditions:**

Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from heat and direct sunlight.  
Protect from contamination.

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- Storage class: 5.2
- **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

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

· **Control parameters**

- Components with limit values that require monitoring at the workplace:

**1338-23-4 2-Butanone, peroxide**

REL	Ceiling limit value: 1.5 mg/m <sup>3</sup> , 0.2 ppm
TLV	Ceiling limit value: 1.5 mg/m <sup>3</sup> , 0.2 ppm

**7722-84-1 hydrogen peroxide solution**

PEL	Long-term value: 1.4 mg/m <sup>3</sup> , 1 ppm
REL	Long-term value: 1.4 mg/m <sup>3</sup> , 1 ppm
TLV	Long-term value: 1.4 mg/m <sup>3</sup> , 1 ppm

**78-93-3 butanone**

PEL	Long-term value: 590 mg/m <sup>3</sup> , 200 ppm
REL	Short-term value: 885 mg/m <sup>3</sup> , 300 ppm Long-term value: 590 mg/m <sup>3</sup> , 200 ppm
TLV	Short-term value: 885 mg/m <sup>3</sup> , 300 ppm Long-term value: 590 mg/m <sup>3</sup> , 200 ppm BEI

- Ingredients with biological limit values:

**78-93-3 butanone**

BEI	2 mg/L Medium: urine Time: end of shift Parameter: MEK
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- Additional information: The lists that were valid during the creation were used as basis.

· **Exposure controls**

- Personal protective equipment:
- General protective and hygienic measures:

Do not eat, drink, smoke or sniff while working.  
 Use skin protection cream for skin protection.  
 Clean skin thoroughly immediately after handling the product.  
 Keep away from foodstuffs, beverages and feed.  
 Immediately remove all soiled and contaminated clothing.  
 Wash hands before breaks and at the end of work.  
 Do not inhale gases / fumes / aerosols.  
 Avoid contact with the eyes and skin.

- Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- Protection of hands:

Preventive skin protection by use of skin-protecting agents is recommended. After use of gloves apply skin-cleaning agents and skin cosmetics. The protection gloves to be used have to comply with the specifications of the directive 89/686/EC and the directive derived decree EN374, respectively, e.g. the above listed protection glove type. The mentioned permeation times' data were generated and verified with material samples of the recommended protection glove type in the scope of laboratory analyses of the company KCL GmbH in compliance with EN374. This recommendation refers exclusively to the material safety data sheet

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referenced product delivered by Akemi and the indicated field of application. In case of product dilution or in case of mixture with different substances or chemicals, and in condition of EN374 deviation the producer of CE-approved protection gloves must be contacted for detailed information (e.g., KCL GmbH, Germany, 36124 Eichenzell, internet: <http://www.kcl.de>).

**Protective gloves**

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

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

· Material of gloves

Butyl rubber, BR  
Nitrile rubber, NBR  
Chloroprene rubber, CR

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

Value for the permeation: Level  $\leq$  6, 480 min

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

· For the permanent contact gloves made of the following materials are suitable:

Butyl rubber, BR  
Butoject (KCL, Art No. 897, 898)  
Nitrile rubber, NBR  
Dermatril (Art No. 740, 741, 742)  
Camatril (KCL, Art No. 730, 731, 732, 733)  
Chloroprene rubber, CR  
Camapren (KCL, Art No. 720, 722, 726)

· As protection from splashes gloves made of the following materials are suitable:

Nitrile rubber, NBR  
Dermatril (KCL, Art No. 740, 741, 742)  
Camatril (KCL, 730, 731, 732, 733)  
Chloroprene rubber, CR  
Camapren (KCL, Art No. 720, 722, 726)

· Not suitable are gloves made of the following materials:

Natural rubber, NR  
Leather gloves  
Strong gloves

· Eye protection:

**Tightly sealed goggles**

· Body protection:

Protective work clothing

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### \* 9 Physical and chemical properties

#### · Information on basic physical and chemical properties

##### · General Information

##### · Appearance:

<u>Form:</u>	Fluid
<u>Color:</u>	Colorless
<u>Odor:</u>	Characteristic

· <u>pH-value:</u>	Not applicable
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##### · Change in condition

<u>Melting point/Melting range:</u>	Undetermined.
<u>Boiling point/Boiling range:</u>	81 °C (178 °F)

· <u>Flash point:</u>	Not applicable.
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· <u>Ignition temperature:</u>	555 °C (1031 °F)
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· <u>Decomposition temperature:</u>	> +60 °C (> +140 °F) (SADT)
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· <u>Auto igniting:</u>	Product is not selfigniting.
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· <u>Danger of explosion:</u>	Product does not present an explosion hazard.
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· <u>Vapor pressure at 20 °C (68 °F):</u>	1.9 hPa (1 mm Hg)
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· <u>Density at 20 °C (68 °F):</u>	1.12 g/cm <sup>3</sup> (9.346 lbs/gal)
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· <u>Specific gravity at 20 °C (68 °F):</u>	1.12 g/cm <sup>3</sup> (9.346 lbs/gal)
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##### · Solubility in / Miscibility with

<u>Water:</u>	Not miscible or difficult to mix.
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##### · Viscosity:

<u>Dynamic:</u>	Not determined.
<u>Kinematic:</u>	Not determined.

##### · Solvent content:

<u>Organic solvents:</u>	22.5 %
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<u>Solids content:</u>	2.6 %
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##### · Other information

	No further relevant information available.
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### \* 10 Stability and reactivity

#### · Reactivity

##### · Chemical stability

##### · Thermal decomposition / conditions to be avoided:

	Rapid decomposition by heating (e. g. direct sunlight or heater).
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##### · Possibility of hazardous reactions

	Self accelerating decomposition above > + 60 °C. Reacts with reducing agents. Reacts with heavy metals. Reacts with amines.
--	--

##### · Conditions to avoid

	Reacts with acids, alkalis and oxidizing agents. No further relevant information available.
--	--

##### · Incompatible materials:

	Rapid decomposition by dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy-metal compounds and amines).
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- **Hazardous decomposition products:** Hydrocarbons, carbondioxide and -monoxid.

## \* 11 Toxicological information

### · Information on toxicological effects

#### · Acute toxicity:

#### · LD/LC50 values that are relevant for classification:

#### **1338-23-4 2-Butanone, peroxide**

Oral	LD50	1017 mg/kg (rat)
Dermal	LD50	4000 mg/kg (rat)
Inhalative	LC50/4 h	17 mg/l (rat)

#### **93-58-3 methyl benzoate**

Oral	LD50	1177 mg/kg (rat)
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#### **7722-84-1 hydrogen peroxide solution**

Oral	LD50	841 mg/kg (rat)
Dermal	LD50	6500 mg/kg (cuniculus)
Inhalative	LC50/4 h	2000 mg/l (rat)
	LC50/48h	2.4 mg/l (daphnia magna)

#### · Primary irritant effect:

#### · on the skin:

Caustic effect on skin and mucous membranes.

#### · on the eye:

Strong caustic effect.

#### · Sensitization:

No sensitizing effects known.

#### · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Corrosive

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

#### · Carcinogenic categories

#### · IARC (International Agency for Research on Cancer)

7722-84-1 hydrogen peroxide solution

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#### · NTP (National Toxicology Program)

None of the ingredients is listed.

## \* 12 Ecological information

### · Toxicity

#### · Aquatic toxicity:

#### **1338-23-4 2-Butanone, peroxide**

EC50	48 mg/l (BES)
LC50/96h	44.2 mg/l (poecilia reticulata)

#### **7722-84-1 hydrogen peroxide solution**

EC50/72h	3.7 mg/l (green alge)
EC50/96h	160 mg/l (green alge)
LC50/96h	16.4 mg/l (pimephales promelas)
NOEC	1 mg/kg (daphnia magna)

#### · Persistence and degradability No further relevant information available.

#### · Behavior in environmental systems:

#### · Bioaccumulative potential

No further relevant information available.

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**Trade name:** Hardener B-Liquid




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- Mobility in soil No further relevant information available.
- **Additional ecological information:**
- General notes: Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 1 (Self-assessment): slightly hazardous for water
- **Results of PBT and vPvB assessment**
- PBT: Not applicable.
- vPvB: Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- Recommendation: Must be specially treated adhering to official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- Recommendation: Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

### \* 14 Transport information

- **UN-Number**
- DOT, ADR, IMDG, IATA UN3105
- **UN proper shipping name**
- DOT Organic peroxide type D, liquid (Methylethylketoneperoxide)
- ADR 3105 Organic peroxide type D, liquid (Methylethylketoneperoxide)
- IMDG, IATA ORGANIC PEROXIDE TYPE D, LIQUID (Methylethylketoneperoxide)
- **Transport hazard class(es)**
- DOT
- 
- Class 5.2 Organic peroxides.
- Label 5.2
- ADR
- 
- Class 5.2 (P1) Organic peroxides
- Label 5.2
- IMDG, IATA
- 
- Class 5.2 Organic peroxides.
- Label 5.2
- **Packing group**
- DOT, ADR, IMDG, IATA Void

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<b>· Environmental hazards:</b>	
· Marine pollutant:	No
<b>· Special precautions for user</b>	Warning: Organic peroxides
· Danger code (Kemler):	-
· EMS Number:	F-J,S-R
<b>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>· Transport/Additional information:</b>	to handle similar to packing group II
· DOT	
· Remarks:	to handle similar to packing group II
· ADR	
· Remarks:	to handle similar to packing group II
· IMDG	
· Remarks:	to handle similar to packing group II
· IATA	
· Remarks:	to handle similar to packing group II
<b>· UN "Model Regulation":</b>	UN3105, Organic peroxide type D, liquid (Methylethylketoneperoxide), 5.2

**15 Regulatory information**

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

· Sara

· Section 355 (extremely hazardous substances):

7722-84-1 hydrogen peroxide solution

· Section 313 (Specific toxic chemical listings):

78-93-3 butanone

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)

78-93-3 butanone

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· TLV (Threshold Limit Value established by ACGIH)

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· MAK (German Maximum Workplace Concentration)

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· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety &amp; Health Administration)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms

GHS02 GHS05 GHS07

· Signal word

Danger

· Hazard-determining components of labeling:2-Butanone, peroxide  
methyl benzoate  
hydrogen peroxide solution· Hazard statementsH242 Heating may cause a fire.  
H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read label before use.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

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

P220 Keep away from reducing agents, heavy metal compounds, acids and alkalis.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P405 Store locked up.

P410 Protect from sunlight.

P411+P235 Store at temperatures not exceeding 86°F. Keep cool.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· National regulations:· Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

· VOC USA

252.0 g/l / 2.10 lb/gl

· **Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

**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.

· **Department issuing MSDS:**

Laboratory

· **Contact:**

Dieter Zimmermann

· **Date of preparation / last revision**

01/22/2014 / -

· **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)

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ICAO: International Civil Aviation Organization  
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  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
ACGIH: American Conference of Governmental Industrial Hygienists  
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)  
NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

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