

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.03.2021

Version number 12

Revision: 03.03.2021

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

1.1 Product identifier

- Trade name: **Hardener B-Liquid**
- Article number: 30423, 30483
- UFI: CUW3-D06C-X00K-G2CP

1.2 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

1.3 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

Further information obtainable from:

Laboratory

1.4 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.
+44 (171) 635 91 91
National Poison Inform. Centre
Medical Toxicology Unit
Avalonley Road
London SE14 5ER

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

- Org. Perox. D H242 Heating may cause a fire.
- Acute Tox. 4 H332 Harmful if inhaled.
- Skin Corr. 1B H314 Causes severe skin burns and eye damage.
- Eye Dam. 1 H318 Causes serious eye damage.

2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008
- Hazard pictograms

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



GHS02 GHS05 GHS07

Signal word

Danger

Hazard-determining components of labelling:

Hazard statements

2-Butanone, peroxide
H242 Heating may cause a fire.
H332 Harmful if inhaled.
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 carefully and follow all instructions.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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P220	Keep away from reducing agents, heavy metal compounds, acids and alkalis.
P234	Keep only in original packaging.
P260	Do not breathe mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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.
P312	Call a POISON CENTER/doctor if you feel unwell.
P405	Store locked up.
P410	Protect from sunlight.
P411+P235	Store at temperatures not exceeding 25°C. Keep cool.
P420	Store away from reducing agents.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

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.

Dangerous components:

CAS: 1338-23-4 EC number: 700-954-4 Reg.nr.: 01-2119514691-43	2-Butanone, peroxide	Org. Perox. D, H242 Skin Corr. 1B, H314; Eye Dam. 1, H318 Acute Tox. 4, H302; Acute Tox. 4, H332	25-50%
CAS: 111-46-6 EINECS: 203-872-2 Index number: 603-140-00-6 Reg.nr.: 01-2119457857-21	2,2'-oxybisethanol	Acute Tox. 4, H302	1-5%
CAS: 78-93-3 EINECS: 201-159-0 Index number: 606-002-00-3 Reg.nr.: 01-2119457290-43	butanone	Flam. Liq. 2, H225 Eye Irrit. 2, H319; STOT SE 3, H336	1-5%

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:** Seek immediate medical advice.
Take affected persons out of danger area and lay down.
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.
Supply fresh air and to be sure call for a doctor.
- After skin contact:** Immediately rinse with water.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

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- 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.
Call for 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.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **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: CO₂, 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** 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)
- **5.3 Advice for firefighters**
- Protective equipment: Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.
- Additional information Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.
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** Keep away from ignition sources.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
- **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.
Do not allow to enter sewers/ surface or ground water.
- **6.3 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 neutralising agent.
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.

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SECTION 7: Handling and storage**7.1 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.
 Restrict the quantity stored at the work place.

Information about fire - and explosion protection:

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.

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

Storage class:

5.2

7.3 Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Additional information about design of technical facilities:**

No further data; see item 7.

Ingredients with limit values that require monitoring at the workplace:**1338-23-4 2-Butanone, peroxide**WEL Short-term value: 1.5 mg/m³, 0.2 ppm**111-46-6 2,2'-oxybisethanol**WEL Long-term value: 101 mg/m³, 23 ppm**78-93-3 butanone**

WEL Short-term value: 899 mg/m³, 300 ppm
 Long-term value: 600 mg/m³, 200 ppm
 Sk, BMGV

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

Oral	DNEL (Langzeit-wiederholt)	0.27 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	3 mg/kg bw/day (ARB) 0.54 mg/kg bw/day (BEV)
Inhalative	DNEL (Langzeit-wiederholt)	5.288 mg/m³ Air (ARB) 0.41 mg/m³ Air (BEV)

111-46-6 2,2'-oxybisethanol

Dermal	DNEL (Langzeit-wiederholt)	106 mg/kg bw/day (ARB) 53 mg/kg bw/day (BEV)
Inhalative	DNEL (Langzeit-wiederholt)	60 mg/m³ Air (ARB) 12 mg/m³ Air (BEV)

78-93-3 butanone

Oral	DNEL (Langzeit-wiederholt)	31 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	1,161 mg/kg bw/day (ARB) 412 mg/kg bw/day (BEV)
Inhalative	DNEL (Langzeit-wiederholt)	600 mg/m³ Air (ARB) 106 mg/m³ Air (BEV)

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

PNEC (wässrig)	1.2 mg/l (KA) 0.001 mg/l (MW) 0.0056 mg/l (SW) 0.056 mg/l (WAS)
PNEC (fest)	0.014 mg/kg Trockengew (BO) 0.009 mg/kg Trockengew (MWS) 0.088 mg/kg Trockengew (SWS)

111-46-6 2,2'-oxybisethanol

PNEC (wässrig)	199.5 mg/l (KA) 1 mg/l (MW) 10 mg/l (SW) 10 mg/l (WAS)
PNEC (fest)	1.53 mg/kg Trockengew (BO) 2.09 mg/kg Trockengew (MWS) 20.9 mg/kg Trockengew (SWS)

78-93-3 butanone

PNEC (wässrig)	709 mg/l (KA) 55.8 mg/l (MW) 55.8 mg/l (SW) 55.8 mg/l (WAS)
PNEC (fest)	22.5 mg/kg Trockengew (BO) 284.7 mg/kg Trockengew (MWS) 284.74 mg/kg Trockengew (SWS)

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· Ingredients with biological limit values:**78-93-3 butanone**

BMGV	70 µmol/L
	Medium: urine
	Sampling time: post shift
	Parameter: butan-2-one

· Additional information:

The lists valid during the making were used as basis.

· **8.2 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.

· 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.
 Short term filter device:
 Filter A/P2

· 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 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 ≤ 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.

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- 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 material gloves

- Eye protection:



Tightly sealed goggles

- Body protection:

Protective work clothing
 Use protective suit.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:	Fluid
Colour:	Colourless
Odour:	weak

pH-value:	Not applicable
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Change in condition

Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	>80 °C

Flash point:	Not applicable.
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Ignition temperature:	555 °C
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Decomposition temperature:	> +60 °C (SADT)
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Auto-ignition temperature:	Product is not selfigniting.
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Explosive properties:	Product does not present an explosion hazard.
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Vapour pressure at 20 °C:	1.9 hPa
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Density at 20 °C:	1.18 g/cm³
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Solubility in / Miscibility with water:	Not miscible or difficult to mix.
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Viscosity:

Dynamic at 20 °C:	14 mPas
Kinematic:	Not determined.

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· Solvent content:
 Organic solvents: 6.5 %

· **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** Stable under recommended transport or storage conditions
- **10.2 Chemical stability**
- Thermal decomposition / conditions to be avoided: Rapid decomposition by heating (e. g. direct sunlight or heater).
- **10.3 Possibility of hazardous reactions** Self accelerating decomposition above > + 60 °C.
 Reacts with reducing agents.
 Reacts with heavy metals.
 Reacts with amines.
 Reacts with acids, alkalis and oxidising agents.
- **10.4 Conditions to avoid** Heat, flames and other sources of ignition
- **10.5 Incompatible materials:** Rapid decomposition by dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy-metal compounds and amines).
- **10.6 Hazardous decomposition products:** Hydrocarbons, carbondioxide and -monoxid.
 Formic acid, acetic acid, propionic acid. Methyl ethyl ketone

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- Acute toxicity Harmful if inhaled.

· LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)

Oral	LD50	2,184-2,903 mg/kg (rat)
Inhalative	LC50/4 h	4.55 mg/l (rat)

1338-23-4 2-Butanone, peroxide

Oral	LD50	1,017 mg/kg (rat)
Dermal	LD50	4,000 mg/kg (rat)
Inhalative	LC50/4 h	1.5 mg/l (rat)

111-46-6 2,2'-oxybisethanol

Oral	LD50	300-2,000 mg/kg (rat)
Dermal	LD50	11,890 mg/kg (rbt)

78-93-3 butanone

Oral	LD50	>2,193 mg/kg (rat) (OECD 423)
Dermal	LD50	>8,000 mg/kg (cuniculosus)
		>5,000 mg/kg (rbt) (OECD 402)
Inhalative	LC50/4 h	34 mg/l (rat)
	LC50/8h	23.5 mg/l (rat)

- Primary irritant effect:
- Skin corrosion/irritation Causes severe skin burns and eye damage.
- Serious eye damage/irritation Causes serious eye damage.
- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

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- Additional toxicological information:
- 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 Based on available data, the classification criteria are not met.
- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information**12.1 Toxicity**Aquatic toxicity:**1338-23-4 2-Butanone, peroxide**

EC50	48 mg/l (BES)
EC50/48h	39 mg/l (daphnia magna)
ErC50/72h	5.6 mg/l (Pseudokirchneriella subcapitata)
EC10	12 mg/l (BES)
LC50/96h	44.2 mg/l (poecilia reticulata)

111-46-6 2,2'-oxybisethanol

NOEC	8,590 mg/kg (literature) 15,380 mg/kg (pimephales promelas)
EC50/48h	48,900 mg/l (daphnia magna)
LC50/96h	75,200 mg/l (pimephales promelas)

78-93-3 butanone

EC5	1,150 mg/l (pseudomonas putida)
EC0	1,150 mg/l (pseudomonas putida) (DIN 38412)
IC5/7d	>4,300 mg/l (scenedesmus quadricauda)
EC50/48h	5,091 mg/l (daphnia magna) (OECD 202)
EC50/72h	1,972 mg/l (Pseudokirchneriella subcapitata) (OECD 201)
LC50/96h	3,220 mg/l (lem) 2,993 mg/l (pimephales promelas) (OECD 203)

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.

Additional ecological information:General notes:

Do not allow product to reach ground water, water course or sewage system.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

12.5 Results of PBT and vPvB assessmentPBT: Not applicable.vPvB: Not applicable.**12.6 Other adverse effects**

No further relevant information available.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**Recommendation

Must be specially treated adhering to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

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- Uncleaned packaging:
- Recommendation:

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

SECTION 14: Transport information

- **14.1 UN-Number**
- ADR, IMDG, IATA

UN3105

- **14.2 UN proper shipping name**
- ADR

3105 ORGANIC PEROXIDE TYPE D, LIQUID
(Methylethylketoneperoxide)
ORGANIC PEROXIDE TYPE D, LIQUID
(Methylethylketoneperoxide)

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

- ADR



- Class
- Label

5.2 (P1) Organic peroxides.
5.2

- IMDG, IATA



- Class
- Label

5.2 Organic peroxides.
5.2

- **14.4 Packing group**
- ADR, IMDG, IATA

Void

- **14.5 Environmental hazards:**
- Marine pollutant:

No

- **14.6 Special precautions for user**
- Hazard identification number (Kemler code):
- EMS Number:
- Stowage Category
- Stowage Code
- Segregation Code

Warning: Organic peroxides.
-
F-J,S-R
D
SW1 Protected from sources of heat.
SG35 Stow "separated from" SGG1-acids
SG36 Stow "separated from" SGG18-alkalis.
SG72 See 7.2.6.3.2.

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

Not applicable.

- Transport/Additional information:

- ADR
- Excepted quantities (EQ)

Code: E0
Not permitted as Excepted Quantity

- IMDG
- Limited quantities (LQ)

125 ml

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· Excepted quantities (EQ)

Code: E0

Not permitted as Excepted Quantity

· UN "Model Regulation":UN 3105 ORGANIC PEROXIDE TYPE D, LIQUID
(METHYLETHYLKETONEPEROXIDE), 5.2**SECTION 15: Regulatory information**· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**· Directive 2012/18/EU· Named dangerous substances - ANNEX I

None of the ingredients is listed.

· Seveso category

P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES

· Qualifying quantity (tonnes) for the application of lower-tier requirements

50 t

· Qualifying quantity (tonnes) for the application of upper-tier requirements

200 t

· National regulations:· Information about limitation of use:Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.· Waterhazard class:

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

· VOC EU

76.6 g/l

· **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.

· Relevant phrases

H225 Highly flammable liquid and vapour.
H242 Heating may cause a fire.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H336 May cause drowsiness or dizziness.

· Recommended restriction of use

refer to Technical Data Sheet (TDS)

· Department issuing SDS:

Laboratory

· Contact:

Elke Hake
Fon ++49 (0)911 64296-59
@mail E.Hake@akemi.de

· 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)
ICAO: International Civil Aviation Organisation
ADR: Accord relatif au transport international 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)
DNEL: Derived No-Effect Level (REACH)

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PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Org. Perox. D: Organic peroxides – Type C/D
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· * Data compared to the previous
version altered.

Adaptation in accordance with REACH directive 1907/2006/EC

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