

Phenothiazin-Lösung 20 Gew.-% zur Synthese in N-Methylpyrrolidon

Revision date: 01.06.2022

Product code: 28912

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

1.1. Product identifier

Phenothiazin-Lösung 20 Gew.-% zur Synthese in N-Methylpyrrolidon

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

Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name:	Fa. Bernd Kraft GmbH	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
e-mail:	info@berndkraft.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
e-mail:	produktsicherheit@berndkraft.de	
Internet:	www.berndkraft.de	
Responsible Department:	Abteilung Produktsicherheit	

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

This product is a mixture. REACH Registration Number see section 3.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin Irrit. 2; H315
Eye Irrit. 2; H319
Skin Sens. 1; H317
Repr. 1B; H360D
STOT SE 3; H335
STOT RE 2; H373
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

N-methyl-2-pyrrolidone
phenothiazine

Signal word: Danger

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Pictograms:



Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H360D	May damage the unborn child.
H335	May cause respiratory irritation.
H373	May cause damage to organs (...) through prolonged or repeated exposure if swallowed.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P391	Collect spillage.

Special labelling of certain mixtures

Restricted to professional users.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name	Quantity
	EC No	Index No
	REACH No	
	Classification (Regulation (EC) No 1272/2008)	
872-50-4	N-methyl-2-pyrrolidone	80 - < 85 %
	212-828-1	606-021-00-7
	01-2119472430-46	
	Repr. 1B, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H360D H315 H319 H335	
92-84-2	phenothiazine	20 - < 25 %
	202-196-5	
	Acute Tox. 4, Skin Sens. 1, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1; H302 H317 H373 H400 H410	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
872-50-4	212-828-1	N-methyl-2-pyrrolidone	80 - < 85 %
		dermal: LD50 = > 5000 mg/kg; oral: LD50 = 4150 mg/kg STOT SE 3; H335: >= 10 - 100	
92-84-2	202-196-5	phenothiazine	20 - < 25 %
		dermal: LD50 = > 2000 mg/kg; oral: LD50 = 1370 mg/kg	

Further Information

No data available

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SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No data available

After inhalation

Provide fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Call a physician immediately.

After contact with skin

Wash immediately with: Water

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

Call a physician immediately.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.

Observe risk of aspiration if vomiting occurs.

Call a physician immediately.

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

No data available

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Combustible liquids

Hazardous combustion products

In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

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

Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

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Remove persons to safety.
Emergency procedures
Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.
Prevent spread over a wide area (e.g. by containment or oil barriers).
Collect in closed and suitable containers for disposal.
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Read label before use. Handle and open container with care.
When using do not eat, drink, smoke, sniff. Keep container tightly closed.
Use personal protection equipment. Use extractor hood (laboratory).
Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation.

Advice on protection against fire and explosion

In case of warming: Vapours are heavier than air, spread along floors and form explosive mixtures with air.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.

Further information on handling

Take off immediately all contaminated clothing and wash it before reuse.
Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. If handled uncovered, arrangements with local exhaust ventilation have to be used.
Store in a place accessible by authorized persons only.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep in a cool, well-ventilated place.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Further information on storage conditions

Keep cool. Protect from sunlight.

7.3. Specific end use(s)

Laboratory chemicals

Safety Data Sheet

according to Regulation (EC) No 1907/2006

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
872-50-4	1-Methyl-2-pyrrolidone	25	101		TWA (8 h)	
92-84-2	Phenothiazine	-	5		TWA (8 h)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
872-50-4	N-Methyl-2-pyrrolidone	2-HMSI	20 mg/g	Creatinine	End of shift (measured morning after shift (8hrs))

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
872-50-4	N-methyl-2-pyrrolidone			
	Worker DNEL, long-term	inhalation	systemic	14,4 mg/m ³
	Worker DNEL, long-term	inhalation	local	40 mg/m ³
	Worker DNEL, long-term	dermal	systemic	4,8 mg/kg bw/day
	Consumer DNEL, long-term	dermal	systemic	2,4 mg/kg bw/day
	Consumer DNEL, long-term	oral	systemic	0,85 mg/kg bw/day
	Consumer DNEL, long-term	inhalation	local	4,5 mg/m ³
	Consumer DNEL, long-term	inhalation	systemic	3,6 mg/m ³
92-84-2	phenothiazine			
	Worker DNEL, acute	inhalation	systemic	1,59 mg/m ³
	Worker DNEL, long-term	dermal	systemic	0,15 mg/kg bw/day
	Worker DNEL, long-term	inhalation	systemic	0,53 mg/m ³
	Consumer DNEL, long-term	dermal	systemic	0,08 mg/kg bw/day
	Consumer DNEL, long-term	oral	systemic	0,08 mg/kg bw/day
	Consumer DNEL, long-term	inhalation	systemic	0,13 mg/m ³
	Consumer DNEL, acute	inhalation	systemic	0,39 mg/m ³
	Consumer DNEL, acute	oral	systemic	0,24 mg/kg bw/day

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PNEC values

CAS No	Substance	Value
Environmental compartment		
872-50-4	N-methyl-2-pyrrolidone	
Freshwater		0,25 mg/l
Freshwater (intermittent releases)		5 mg/l
Marine water		0,025 mg/l
Freshwater sediment		1,09 mg/kg
Marine sediment		0,109 mg/kg
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		0,07 mg/kg
92-84-2	phenothiazine	
Freshwater		0 mg/l
Freshwater (intermittent releases)		0,002 mg/l
Marine water		0 mg/l
Freshwater sediment		0,019 mg/kg
Marine sediment		0,002 mg/kg
Micro-organisms in sewage treatment plants (STP)		0,054 mg/l
Soil		0,023 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

goggles
Face protection umbrella

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation KCL 897 Butoject®
Suitable material: Butyl caoutchouc (butyl rubber) 0,3 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation KCL 720 Camapren®
Suitable material: CR (polychloroprene, chloroprene rubber) 0,65 mm
Wearing time with occasional contact (splashes): > 60 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples

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of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Take off immediately all contaminated clothing and wash it before reuse.
Wash hands and face before breaks and after work and take a shower if necessary.
Draw up and observe skin protection programme.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	clear
Odour:	characteristic
Odour threshold:	No data available

Changes in the physical state

Melting point/freezing point:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
:	No data available
Flash point:	91 °C

Flammability

Solid/liquid:	not applicable
Gas:	not applicable

Explosive properties

In case of warming:
Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	No data available

Self-ignition temperature

Solid:	not applicable
Gas:	not applicable

Decomposition temperature:	not determined
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pH-Value:	not determined
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Viscosity / dynamic:	No data available
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Viscosity / kinematic:	No data available
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Flow time:	No data available
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Water solubility:	No
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Solubility in other solvents

not determined

Dissolution rate:	No data available
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Partition coefficient n-octanol/water:	not determined
Vapour pressure:	No data available
Vapour pressure:	No data available
Density:	1,07312 g/cm ³
Bulk density:	No data available
Relative vapour density:	not determined
Particle characteristics:	No data available

9.2. Other information

Information with regard to physical hazard classes

Oxidizing properties
Not oxidising.

Other safety characteristics

Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	not determined
Evaporation rate:	not determined

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

In case of warming:
Vapours are heavier than air, spread along floors and form explosive mixtures with air.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Oxidising agent

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

Further information

No data available

SECTION 11: Toxicological information

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

Toxicokinetics, metabolism and distribution

There are no data available on the mixture itself.

Acute toxicity

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

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
872-50-4	N-methyl-2-pyrrolidone				
	oral	LD50 4150 mg/kg	Rat	Fd. Chem. Toxicol. 26, No. 5: 475-479 (1)	OECD Guideline 401
	dermal	LD50 > 5000 mg/kg	Rat	Int. Res. Comm. System Med. Sci. 12: 296	OECD Guideline 402
92-84-2	phenothiazine				
	oral	LD50 1370 mg/kg	Rat	Study report (1977)	other: As outlined in "Appraisal of the
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2010)	OECD Guideline 402

Irritation and corrosivity

Causes skin irritation.
Causes serious eye irritation.

Sensitising effects

May cause an allergic skin reaction. (phenothiazine)

Carcinogenic/mutagenic/toxic effects for reproduction

May damage the unborn child. (N-methyl-2-pyrrolidone)
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.

STOT-single exposure

May cause respiratory irritation. (N-methyl-2-pyrrolidone)

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure. (phenothiazine)

Aspiration hazard

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

Information on likely routes of exposure

There are no data available on the mixture itself.

Specific effects in experiment on an animal

There are no data available on the mixture itself.

Additional information on tests

There are no data available on the mixture itself.

Practical experience

There are no data available on the mixture itself.

11.2. Information on other hazards

Endocrine disrupting properties

There are no data available on the mixture itself.

Other information

There are no data available on the mixture itself.

Further information

There are no data available on the mixture itself.

SECTION 12: Ecological information

12.1. Toxicity

There are no data available on the mixture itself.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
872-50-4	N-methyl-2-pyrrolidone					
	Acute fish toxicity	LC50 > 500 mg/l	96 h	Oncorhynchus mykiss	Study report (1983)	other: Static fish toxicity test accordi
	Acute algae toxicity	ErC50 600,5 mg/l	72 h	Desmodesmus subspicatus	Study report (1989)	other: German Industrial Standard DIN 38
	Crustacea toxicity	NOEC 12,5 mg/l	21 d	Daphnia magna	Study report (2001)	OECD Guideline 211
	Acute bacteria toxicity	(EC50 > 600 mg/l)	0,5 h	activated sludge, industrial	Study report (1987)	ISO 8192
92-84-2	phenothiazine					
	Acute fish toxicity	LC50 70,7 mg/l	96 h	Oncorhynchus mykiss	Study report (2010)	OECD Guideline 203
	Acute algae toxicity	ErC50 > 100 mg/l	72 h	Desmodesmus subspicatus	Study report (2010)	OECD Guideline 201

12.2. Persistence and degradability

There are no data available on the mixture itself.

12.3. Bioaccumulative potential

There are no data available on the mixture itself.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
872-50-4	N-methyl-2-pyrrolidone	-0,46
92-84-2	phenothiazine	ca. 3,78

BCF

CAS No	Chemical name	BCF	Species	Source
92-84-2	phenothiazine	>= 310	Cyprinus carpio	Study report (1983)

12.4. Mobility in soil

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

There are no data available on the mixture itself.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

Do not allow to enter into surface water or drains.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not empty into drains.

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Contaminated packaging

This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (phenothiazine)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	90
Tunnel restriction code:	-

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (phenothiazine)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (phenothiazine)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Special Provisions:	274, 335, 969
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-F

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (phenothiazine)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Special Provisions:	A97 A158 A197
Limited quantity Passenger:	30 kg G
Passenger LQ:	Y964
Excepted quantity:	E1
IATA-packing instructions - Passenger:	964

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IATA-max. quantity - Passenger:	450 L
IATA-packing instructions - Cargo:	964
IATA-max. quantity - Cargo:	450 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	Yes
Danger releasing substance:	phenothiazine

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):
N-methyl-2-pyrrolidone

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 30, Entry 75

Information according to 2012/18/EU (SEVESO III):	E2 Hazardous to the Aquatic Environment
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National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
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Water hazard class (D):	3 - highly hazardous to water
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Skin resorption/Sensitization:	Causes allergic hypersensitivity reactions.
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15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1,2,3,4,5,6,7,8,9,10,11,12,13.

Abbreviations and acronyms

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 Harmonized 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

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

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Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Skin Sens. 1; H317	Calculation method
Repr. 1B; H360D	Calculation method
STOT SE 3; H335	Calculation method
STOT RE 2; H373	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360D	May damage the unborn child.
H373	May cause damage to organs (...) through prolonged or repeated exposure if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)