

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

**1.1 Product identifier**

**Trade name: Lithium Ionen Akku / Akku-Pack (LiFePO4)**

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

**Application of the substance / the mixture** Rechargeable Li-ion battery

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

**Manufacturer/Supplier:**

**Tridonic GmbH & Co KG**

Färbergasse 15

6850 Dornbirn

Austria

Tel: +43 5572 395-0

sales@tridonic.com

**Further information obtainable from:**

Gerhard Radl

gerhard.radl@tridonic.com

**1.4 Emergency telephone number:**

+43 5572 395-0

Available during office hours:

Mo - Fr 8.00 - 16.00 h

**Call the national emergency number!**

**\* SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

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

The product is not classified, according to the CLP regulation.

**Additional information:**

The product itself is declared as an article in sense of REACH (EC) No. 1907/2006 and is not subject to the provisions of classification in sense of the regulation (EC) No. 1272/2008.

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008** void

**Hazard pictograms** void

**Signal word** void

**Hazard statements** void

**Additional information:**

The product itself is declared as an article in sense of REACH (EC) No. 1907/2006 and is not subject to the provisions of labeling in sense of the regulation (EC) No. 1272/2008.

**2.3 Other hazards**

Lithium-ion batteries are gas-tight and harmless if the manufacturer's instructions are observed during use and handling.

Never use chargers that are not suitable for the type of battery with rechargeable batteries. The limits for maximum current load, charging and discharging voltage must be strictly adhered to! Do not short-circuit. Do not damage mechanically (pierce, deform, disassemble, etc.). Do not heat or burn above the permissible temperature. Keep batteries away from small children. Always store batteries in a dry and cool

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place.

Lithium-ion batteries are safe to use when used properly and within the parameters specified by the manufacturer. Incorrect handling or circumstances resulting in improper operation may result in leakage of battery contents and decomposition products, resulting in severe reactions hazardous to health and the environment. In principle, contact with leaked battery components can pose a risk to health and the environment. Sufficient body and respiratory protection is therefore required in contact with conspicuous batteries (leakage of contents, deformation, discoloration, dents, etc.). Lithium-ion batteries can react very violently in combination with fire, for example. Battery components with considerable energy can be emitted.

As with other batteries, lithium batteries can continue to be a source of danger even when they are supposedly discharged.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Determination of endocrine-disrupting properties**

The product does not contain substances with endocrine-disrupting properties  $\geq 0.1$  %(w/w).








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

**3.2 Mixtures**

**Description:**

Rechargeable lithium-ion batteries are articles from which no substance is released when used properly.








**Dangerous components:**

CAS: 12190-79-3 EINECS: 235-362-0	Lithium Cobalt(III) Oxide	0 – 45%
	 Repr. 1B, H360	
CAS: 193214-24-3 EC number: 803-110-4	Lithium Cobalt Nickel Aluminum Oxide	0 – 45%
	 Carc. 2, H351  Skin Sens. 1, H317	
CAS: 346417-97-8 EC number: 620-032-4	Lithium Nickel Manganese Cobalt Oxide	0 – 45%
	 Carc. 2, H351  Skin Sens. 1, H317	
CAS: 7440-44-0 EINECS: 231-153-3 RTECS: FF 5250100	carbon substance with a Community workplace exposure limit	10 – 30%
CAS: 12057-17-9 EC number: 601-724-5	Lithium Manganese (III,IV) oxide	0 – 20%
	 Acute Tox. 4, H302; Acute Tox. 4, H332  Aquatic Chronic 4, H413	

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CAS: 616-38-6 EINECS: 210-478-4 Index number: 607-013-00-6 RTECS: FG 0450000	dimethyl carbonate  Flam. Liq. 2, H225	1 – 15%
CAS: 7440-50-8 EINECS: 231-159-6 Index number: 029-024-00-X RTECS: GL 5325000	copper  Aquatic Chronic 2, H411	7 – 13%
CAS: 623-53-0 ELINCS: 433-480-9	Ethyl methyl carbonate  Flam. Liq. 2, H225	1 – 10%
CAS: 96-49-1 EINECS: 202-510-0 RTECS: FF 9550000	ethylene carbonate  Eye Dam. 1, H318	0 – 10%
CAS: 7429-90-5 EINECS: 231-072-3 RTECS: BD 0330000	aluminium substance with a Community workplace exposure limit	3 – 9%
CAS: 21324-40-3 EINECS: 244-334-7	Lithium hexafluorophosphate(1-)  Acute Tox. 3, H301  STOT RE 1, H372  Skin Corr. 1A, H314	0.1 – 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:**

In normal cases no specific measures needed.

It always applies:

In case of discomfort or doubt, seek medical advice.

If unconscious, use a stable lateral position and do not administer anything through mouth.

The following measures apply to contact with the contents of a damaged battery:

**After inhalation:**

Supply fresh air; consult doctor in case of complaints.

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

**After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

Take off contaminated clothing and wash it before reuse.

Seek medical treatment in case of complaints.

**After eye contact:**

Rinse opened eye for several minutes under running water.

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

Consult an ophthalmologist or eye clinic immediately.

**After swallowing:**

Rinse mouth thoroughly with cold water. Do not induce vomiting. If the patient is fully conscious, give one or two glass of water to drink. Get medical attention immediately.

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**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**

Depending on the condition of the patients, the doctor must assess the symptoms and the overall general condition.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing agents:**

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

**For safety reasons unsuitable extinguishing agents:** Water with full jet

**5.2 Special hazards arising from the substance or mixture**

Batteries may burst at high temperatures, which may result in flammable, toxic and/or corrosive vapours.

May form hydrofluoric acid if the electrolyte comes into contact with water.

In case of fire, the following can be released:

CO<sub>x</sub>

Hydrogen fluoride (HF)

**5.3 Advice for firefighters**

**Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

**Additional information**

Remove container from fire, if possible without risk.

Cool endangered receptacles with water spray.

Ensure good ventilation.

**SECTION 6: Accidental release measures**

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

Restricted access to the affected area until cleaning work is completed.

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Avoid skin and eye contact with damaged batteries.

**6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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

Cover leaked material with inert absorbent material (sand or soil) and dispose of in suitable containers.

Clean again.

**6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**

In any case, the warnings on batteries and the instructions for use of devices and other applications must be carefully observed.

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Use only the recommended battery types.

Lithium-ion batteries should preferably be stored at room temperature and dry (max. 40°C), large temperature fluctuations should be avoided. (e.g. do not store near heaters, do not permanently expose to sunlight).

Never open, mechanically damage or burn the battery!

Observe protective measures and safety instructions.

**Information about fire - and explosion protection:**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**7.2 Conditions for safe storage, including any incompatibilities**

**Storage:**

**Requirements to be met by storerooms and receptacles:**

Store in dry conditions.

Store in a cool location.

Protect from heat and direct sunlight.

Store in accordance with local/regional/national/international regulations.

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

Store away from oxidising agents.

Do not store together with acids.

**Further information about storage conditions:**

Recharge at regular intervals during prolonged storage.

Store in original container.

**Recommended storage temperature:**

room temperature

Storage at room temperature (approx. 20°C) at approx. 20~60% of the nominal capacity.

**Storage class: 11**

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

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

**8.1 Control parameters**

Lithium-ion batteries are products from which no substances are released under normal and reasonably foreseeable conditions of use.

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

**CAS: 7440-44-0 carbon**

MAK (Austria)	Short-term value: 10 A mg/m <sup>3</sup> Long-term value: 5 A mg/m <sup>3</sup> (Alveolarstaub mit <1%Quartz)
AGW (Germany)	Long-term value: 1.25* 10** mg/m <sup>3</sup> 2(II);*alveolengängig**eintembar; AGS, DFG, Y
WEL (Great Britain)	Long-term value: 10* 4** mg/m <sup>3</sup> *inhalable dust **respirable

**CAS: 7440-50-8 copper**

MAK (Austria)	Short-term value: 4E; 0.4A* mg/m <sup>3</sup> Long-term value: 1E; 0.1A* mg/m <sup>3</sup> als Cu berechnet; *als Rauch
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MAK (Germany)	Long-term value: 0.01 A mg/m <sup>3</sup> als Cu
LEP (Spain)	Long-term value: 0.01 mg/m <sup>3</sup> fracción resp., d
VLEP (France)	Short-term value: 2** mg/m <sup>3</sup> Long-term value: 0.2* 1** mg/m <sup>3</sup> *fumées **poussières, en Cu
WEL (Great Britain)	Short-term value: 2** mg/m <sup>3</sup> Long-term value: 0.2* 1** mg/m <sup>3</sup> *fume **dusts and mists (as Cu)
TWA (Italy)	Long-term value: 0.2* 1* mg/m <sup>3</sup> *fumi; **polveri e nebbie
WGW (Netherland)	Long-term value: 0.1 mg/m <sup>3</sup> inhaleerbaar
<b>CAS: 7429-90-5 aluminium</b>	
MAK (Austria)	Short-term value: 20 E 10 A mg/m <sup>3</sup> Long-term value: 10 E 5 A mg/m <sup>3</sup> (als Metall)
AGW (Germany)	Long-term value: 1.25* 10** mg/m <sup>3</sup> 2(II);*alveolengängig**einatembare; AGS, DFG, Y
LEP (Spain)	Long-term value: 1 mg/m <sup>3</sup> d, fracción respirable
VLEP (France)	Long-term value: 5* 10** mg/m <sup>3</sup> *pulvérulent **métal
WEL (Great Britain)	Long-term value: 10* 4** mg/m <sup>3</sup> *inhalable dust **respirable dust
TWA (Italy)	Long-term value: 1 mg/m <sup>3</sup> A4, (j); metallico e composti insolubili
WGW (Netherland)	Long-term value: 0.05* mg/m <sup>3</sup> *Metaal en onoplosbare verb., inadembaar (privaat)
<b>CAS: 21324-40-3 Lithium hexafluorophosphate(1-)</b>	
AGW (Germany)	Long-term value: 0.2 E mg/m <sup>3</sup> 1(I);Y, 10, DFG, als Li

**Regulatory information**

MAK (Austria): GKV 2020, 156. Verordnung, 09.04.2021, Teil II

AGW (Germany): TRGS 900

WEL (Great Britain): EH40/2020

MAK (Germany): MAK- und BAT-Liste

LEP (Spain): Límites de exposición profesional para agentes químicos

VLEP (France): ED 1487 05.2021

TWA (Italy): Valori Limite di Soglia

WGW (Netherland): Grenswaarden gezondheidsschadelijke stoffen

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<b>DNELs</b>		
<b>CAS: 7440-50-8 copper</b>		
Oral	Long-term exposure - systemic effects	0.041 mg/kg bw/d (consumer)
Dermal	Long-term exposure - systemic effects	137 mg/kg bw/d (consumer)
		137 mg/kg bw/d (workers)
	short-term exposure - systemic effects	273 mg/kg bw (consumer)
		273 mg/kg bw (workers)
Inhalative	Long-term exposure - local effects	1 mg/m <sup>3</sup> (consumer)
		1 mg/m <sup>3</sup> (workers)
	short-term exposure - local effects	1 mg/m <sup>3</sup> (consumer)
		1 mg/m <sup>3</sup> (workers)
<b>CAS: 7429-90-5 aluminium</b>		
Oral	Long-term exposure - systemic effects	7.9 mg/kg bw/d (consumer)
Inhalative	Long-term exposure - systemic effects	3.72 mg/m <sup>3</sup> (workers)
	Long-term exposure - local effects	3.72 mg/m <sup>3</sup> (workers)
<b>PNECs</b>		
<b>CAS: 7440-50-8 copper</b>		
fresh water		6.3 µg/l
sea water		5.2 µg/l
STP		0.23 mg/l
sediment (fresh water)		87 mg/kg dw
sediment (sea water)		676 mg/kg dw
soil		65 mg/kg dw
<b>Ingredients with biological limit values:</b>		
<b>CAS: 7429-90-5 aluminium</b>		
BGW (Germany)	50 µg/g Kreatinin Untersuchungsmaterial: Urin Probennahmezeitpunkt: bei Langzeitexposition: am Schichtende nach mehreren vorangegangenen Schichten Parameter: Aluminium	

**Regulatory information** BGW (Germany): TRGS 903

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

**8.2 Exposure controls**

**Appropriate engineering controls**

No further data; see section 7.

Technical measures and the use of suitable working methods take priority over the use of personal protective equipment.

**Individual protection measures, such as personal protective equipment**

**General protective and hygienic measures:**

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

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Keep away from foodstuffs, beverages and feed.

Do not eat or drink while working.

Avoid skin and eye contact with damaged batteries.

Avoid inhalation of spilled material.

Take off contaminated clothing and wash it before reuse.

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye wash bottles and emergency showers should be provided in the immediate area near the workplace.

**Respiratory protection:** Not required when handling undamaged batteries.

**Hand protection**

Not required when handling undamaged batteries.

Wear protective gloves made of chloroprene or rubber if batteries are damaged.

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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

**Penetration time of glove material**

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

**Eye/face protection**

Not required when handling undamaged batteries.

Wear protective goggles if batteries are damaged.

**Body protection:** Not required when handling undamaged batteries.

**Environmental exposure controls** Do not allow to enter sewers/ surface or ground water.

**SECTION 9: Physical and chemical properties**

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

**General Information**

**Physical state**

Solid

**Colour:**

Various colours

**Odour:**

Odourless

**Odour threshold:**

No information available.

**Melting point/freezing point:**

No information available.

**Boiling point or initial boiling point and boiling range**

No information available.

**Flammability**

Not determined.

**Lower and upper explosion limit**

**Lower:**

No information available.

**Upper:**

No information available.

**Flash point:**

Not applicable.

**Decomposition temperature:**

No information available.

**pH**

Not applicable.

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**Trade name: Lithium Ionen Akku / Akku-Pack (LiFePO4)**

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**Viscosity:**

**Kinematic viscosity**

Not applicable.

**Dynamic:**

Not applicable.

**Solubility**

**water:**

Insoluble.

**Partition coefficient n-octanol/water (log value)**

No information available.

**Vapour pressure:**

Not applicable.

**Density and/or relative density**

**Density:**

No information available.

**Vapour density**

Not applicable.

**Particle characteristics**

See section 3.

**9.2 Other information**

**Appearance:**

**Form:**

Solid

**Important information on protection of health and environment, and on safety.**

**Ignition temperature:**

No information available.

**Explosive properties:**

No information available.

**Change in condition**

**Softening point/range**

**Oxidising properties**

No information available.

**Evaporation rate**

Not applicable.

**Information with regard to physical hazard classes**

**Explosives**

void

**Flammable gases**

void

**Aerosols**

void

**Oxidising gases**

void

**Gases under pressure**

void

**Flammable liquids**

void

**Flammable solids**

void

**Self-reactive substances and mixtures**

void

**Pyrophoric liquids**

void

**Pyrophoric solids**

void

**Self-heating substances and mixtures**

void

**Substances and mixtures, which emit flammable**

**gases in contact with water**

void

**Oxidising liquids**

void

**Oxidising solids**

void

**Organic peroxides**

void

**Corrosive to metals**

void

**Desensitised explosives**

void

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#### SECTION 10: Stability and reactivity

**10.1 Reactivity** No hazardous reactions known if stored and used as prescribed.

**10.2 Chemical stability** No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions** No further relevant information available.

#### 10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Do not expose the rechargeable Li-Ion battery to mechanical shock.

Do not disassemble, crush, short-circuit, or connect with incorrect polarity. Avoid mechanical or electrical abuse.

**10.5 Incompatible materials:** No further relevant information available.

#### 10.6 Hazardous decomposition products:

No decomposition if used and stored according to specifications.

With open cells there is the possibility of the release of hydrofluoric acid and carbon monoxide.

#### SECTION 11: Toxicological information

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

**Inhalation:** No probable route of exposure of the product itself. Inhalation of substances leaked from damaged batteries may irritate the respiratory tract and damage organs during prolonged or repeated exposure.

**Skin contact:** Contact with the undamaged battery does not present a hazard. Skin contact with damaged batteries may cause burns.

**Eye contact:** Contact with the undamaged battery does not constitute a hazard. Eye contact with spills from the damaged battery may cause burns.

**Ingestion:** No probable route of exposure of the product itself. Ingestion of spills may cause burns to the esophagus and stomach. Harmful if swallowed.

The product is declared as an article and is not subject to the CLP classification and labelling requirements.

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

#### LD/LC50 values relevant for classification:

#### CAS: 616-38-6 dimethyl carbonate

Oral	LD50	13,000 mg/kg (rat)
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Dermal	LD50	> 5,000 mg/kg (Rabbit)
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#### CAS: 7440-50-8 copper

Oral	LD50	> 2,000 mg/kg (rat)
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#### CAS: 96-49-1 ethylene carbonate

Oral	LD50	10,000 mg/kg (rat)
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#### CAS: 7429-90-5 aluminium

Oral	LD50	15,900 mg/kg (rat)
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Inhalative	LC50/4h	> 888 mg/m <sup>3</sup> (rat)
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**Skin corrosion/irritation**

The electrolyte contained in the cell or battery is classified as a caustic liquid and causes skin burns.

**Serious eye damage/irritation**

The electrolyte contained in the cell or battery is classified as a corrosive liquid and causes serious eye damage.

**Respiratory or skin sensitisation**

The electrolyte contained in the cell or battery contains sensitizing substances.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** The electrolyte contains nickel and cobalt compounds.

**Reproductive toxicity** The electrolyte contains cobalt compounds.

**STOT-single exposure** Based on available data, the classification criteria are not met.

**STOT-repeated exposure** The electrolyte contains nickel compounds.

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

**Other information:** There is no danger from the undamaged battery.

**11.2 Information on other hazards**

**Endocrine disrupting properties**

None of the ingredients is listed.

**SECTION 12: Ecological information**

**12.1 Toxicity**

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability** No further relevant information available.

**12.3 Bioaccumulative potential** No further relevant information available.

**12.4 Mobility in soil** No further relevant information available.

**12.5 Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

**12.7 Other adverse effects**

**Additional ecological information:**

**General notes:**

Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Avoid release to the environment.

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**Recommendation**

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

Dispose only through authorized companies in accordance with local regulations.

**European waste catalogue**

Notes: The European Waste Catalogue (EWC) classifies waste materials and categorises them according to what they are and how they were produced. This may cause other classifications. The final decision belongs to the last user.

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16 06 05 other batteries and accumulators

Uncleaned packaging:

Recommendation: Dispose of packaging according to regulations on the disposal of packagings.

#### SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN, IMDG, IATA

UN3480

14.2 UN proper shipping name

ADR/RID/ADN

3480 LITHIUM ION BATTERIES

IMDG, IATA

LITHIUM ION BATTERIES

14.3 Transport hazard class(es)

ADR/RID/ADN



Class

9 Miscellaneous dangerous substances and articles.

Label

9

IMDG, IATA



Class

9 Miscellaneous dangerous substances and articles.

Label

9A

14.4 Packing group

ADR/RID/ADN, IMDG, IATA

not regulated

14.5 Environmental hazards:

Not applicable.

14.6 Special precautions for user

Warning: Miscellaneous dangerous substances and articles.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

Transport/Additional information:

**Special provision 188:**

The carriage of Li-ion batteries is not subject to the provisions of ADR/RID/IMDG if the requirements set out therein are met.

UN "Model Regulation":

UN 3480 LITHIUM ION BATTERIES

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Labelling according to Regulation (EC) No 1272/2008

According to REACH, the product is an article and therefore not subject to classification and labelling according to CLP Regulation (EC) No. 1272/2008.

There is no obligation to prepare safety data sheets for articles. This data sheet describes the safety requirements and is based on the safety data sheet according to REACH Regulation (EC) No. 1907/2006.

#### Directive 2012/18/EU

**Named dangerous substances - ANNEX I** None of the ingredients is listed.

#### DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

None of the ingredients is listed.

#### REGULATION (EU) 2019/1148

#### Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))

None of the ingredients is listed.

#### Annex II - REPORTABLE EXPLOSIVES PRECURSORS

None of the ingredients is listed.

#### Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is listed.

#### Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

None of the ingredients is listed.

#### National regulations:

#### Other regulations, limitations and prohibitive regulations

#### Substances of very high concern (SVHC) according to REACH, Article 57

Contains no SVHC substances  $\geq 0.1$  %. (Status: 09/2023)

**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.

H301 Toxic if swallowed.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H332 Harmful if inhaled.

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H351 Suspected of causing cancer.

H360 May damage fertility or the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H411 Toxic to aquatic life with long lasting effects.

H413 May cause long lasting harmful effects to aquatic life.

**Training hints**

Regular training of staff involved in the transport of dangerous goods (in accordance with Chapter 1.3 ADR).

**Department issuing SDS:**

UmEnA GmbH

<http://umena.at>

Email: [office@umena.at](mailto:office@umena.at)

**Date of previous version:** 08.11.2022

**Version number of previous version:** 1.3

**Abbreviations and acronyms:**

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)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Carc. 2: Carcinogenicity – Category 2

Repr. 1B: Reproductive toxicity – Category 1B

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

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