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

1.1 Product identifier

Trade name: Nickel Metallhydrid Akku /Akku-Pack (NiMH)

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

Application of the substance / the mixture Rechargeable 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

NiMH 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.

NiMH 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.). NiMH batteries can react very violently in combination with fire, for example. Battery components with considerable energy can be emitted.

As with other batteries, NiMH 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 ≥ 0.1 %(w/w).

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description:

Rechargeable NiMH batteries are products from which no substance is released when used properly.

Dangerous components:		
CAS: 7440-02-0 EINECS: 231-111-4 Index number: 028-002-00-7	nickel Carc. 2, H351; STOT RE 1, H372 Skin Sens. 1, H317	10 – 55%
CAS: 1313-99-1 EINECS: 215-215-7 Index number: 028-003-00-2	nickel monoxide Resp. Sens. 1, H334; Carc. 1A, H350i; STOT RE 1, H372 Aquatic Chronic 2, H411 Acute Tox. 4, H332; Skin Sens. 1, H317	0 – 55%
CAS: 12054-48-7 EINECS: 235-008-5 Index number: 028-008-00-X	nickel dihydroxide Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1A, H350i; Repr. 1B, H360D; STOT RE 1, H372 Aquatic Acute 1, H400; Aquatic Chronic 1, H410 Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Skin Sens. 1, H317	0 – 55%
CAS: 11104-61-3 EINECS: 234-334-5	Cobalt oxide Acute Tox. 3, H301; Acute Tox. 2, H330 Resp. Sens. 1, H334; Carc. 2, H351; Repr. 1B, H360 Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10) Skin Sens. 1, H317	≤ 8.3%

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CAS: 7439-96-5 EINECS: 231-105-1 RTECS: OO 9275000	manganese substance with a Community workplace exposure limit	0 – 8%
CAS: 1310-58-3 EINECS: 215-181-3 Index number: 019-002-00-8 RTECS: TT 2102000 Reg.nr.: 01-2119487136-33-XXXX	potassium hydroxide Met. Corr.1, H290; Skin Corr. 1A, H314 Acute Tox. 4, H302 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0.5 % ≤ C < 2 % Eye Irrit. 2; H319: 0.5 % ≤ C < 2 % Met. Corr.1; H290: C ≥ 0.1 %	< 7.0%
CAS: 7440-48-4 EINECS: 231-158-0 Index number: 027-001-00-9 RTECS: GF 8750000	cobalt Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1A, H350i; Repr. 2, H361 Acute Tox. 4, H302; Skin Sens. 1, H317 Aquatic Chronic 4, H413	< 6.0%
CAS: 21041-93-0 EINECS: 244-166-4	Cobalt dihydroxide Acute Tox. 1, H330 Resp. Sens. 1B, H334; Carc. 1B, H350; Repr. 1B, H360 Aquatic Acute 1, H400 (M=10); Aquatic Chronic 2, H411 Acute Tox. 4, H302; Eye Irrit. 2, H319; Skin Sens. 1, H317	< 6.0%
CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6 Reg.nr.: 01-2119457892-27-XXXX	sodium hydroxide Met. Corr.1, H290; Skin Corr. 1A, H314 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0.5 % ≤ C < 2 % Eye Dam. 1; H318: C ≥ 2 % Eye Irrit. 2; H319: 0.5 % ≤ C < 2 % Met. Corr.1; H290: C ≥ 0.1 %	≤ 4.0%
CAS: 1310-65-2 EINECS: 215-183-4 Reg.nr.: 01-2119560576-31-XXXX	lithium hydroxide Skin Corr. 1B, H314 Acute Tox. 4, H302	0 – 4%

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CAS: 31175-20-9 EC number: 680-985-7	ethanesulfonic acid, 2-[1-[difluoro[(1,2,2-trifluoroethenyl)oxy]methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-, polymer with 1,1,2,2-tetrafluoroethene Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	≤ 3.2%
CAS: 1314-13-2 EINECS: 215-222-5 Index number: 030-013-00-7 RTECS: ZH 4810000 Reg.nr.: 01-2119463881-32-XXXX	zinc oxide Aquatic Acute 1, H400; Aquatic Chronic 1, H410	< 3.0%
CAS: 7440-66-6 EINECS: 231-175-3	zinc - massive substance with a Community workplace exposure limit	< 3.0%
CAS: 7429-90-5 EINECS: 231-072-3 RTECS: BD 0330000	aluminium substance with a Community workplace exposure limit	< 2.0%

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.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

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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:
CO2, foam, dry extinguishing agent
Dry sand
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.
In case of fire, the following can be released:
COx
carcinogic nickel- und cobalt oxides
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.
Inform respective authorities in case of seepage into water course or sewage system.
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
Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the

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battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current.
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:
Protect against moisture.
Do not storage the Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
Recommended storage temperature: room temperature
Storage class: 11
7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
NiMH 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: 7440-02-0 nickel	
MAK (Austria)	siehe Anhang III A 1
TRK (Austria)	Short-term value: 2E; 0.2E* mg/m³ Long-term value: 0.5E; 0.05E* mg/m³ Stäube; *einatembare Tröpfchen; als Ni
AGW (Germany)	Long-term value: 0.006A; 0.030E* mg/m³ 8(II);AGS, 24, Sh, Y, 10*, 31*
LEP (Spain)	Long-term value: 1 mg/m³ Sen, r
VLEP (France)	Long-term value: 1 mg/m³ C2

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WEL (Great Britain)	Long-term value: 0.5 mg/m³ as Ni; Sk; Carc
TWA (Italy)	Long-term value: 1.5 mg/m³ A5, (i)
CAS: 1313-99-1 nickel monoxide	
BOELV (EU)	Long-term value: 0.1* mg/m³ as Ni; sens. dermal/resp. *inhalable
TRK (Austria)	Short-term value: 2E; 0.2E* mg/m³ Long-term value: 0.5E; 0.05E* mg/m³ Stäube; *einatembare Tröpfchen; als Ni
AGW (Germany)	Long-term value: 0.030E mg/m³ 8(II);AGS, Sh, Y, 10, 24, 31
TRGS 910 (Germany)	Short-term value: 0.006 (A) mg/m³ Long-term value: 0.006 (A) mg/m³ 8, Konzentrationen beziehen sich auf Ni-Gehalt
LEP (Spain)	Long-term value: 0.2 mg/m³ C1, c, Sen, r, como Ni
VLEP (France)	Long-term value: 1 mg/m³ C1A
WEL (Great Britain)	Long-term value: 0.5 mg/m³ as Ni; Sk; Carc
CAS: 12054-48-7 nickel dihydroxide	
BOELV (EU)	Long-term value: 0.1* mg/m³ as Ni; sens. dermal/resp. *inhalable
TRK (Austria)	Short-term value: 2E; 0.2E* mg/m³ Long-term value: 0.5E; 0.05E* mg/m³ Stäube; *einatembare Tröpfchen; als Ni
AGW (Germany)	Long-term value: 0.030E mg/m³ 8(II);AGS, Sh, Y, 10, 24, 31
TRGS 910 (Germany)	Short-term value: 0.006 (A) mg/m³ Long-term value: 0.006 (A) mg/m³ 8, Konzentrationen beziehen sich auf Ni-Gehalt
VLEP (France)	Long-term value: 1 mg/m³ C1A, M2, R1B
WEL (Great Britain)	Long-term value: 0.5 mg/m³ as Ni; Sk; Carc
CAS: 7439-96-5 manganese	
IOELV (EU)	Long-term value: 0.2* 0.05** mg/m³ as Mn; *inhalable, **respirable fraction
MAK (Austria)	Short-term value: 1.6 E, 0.16 A mg/m³ Long-term value: 0.2 E, 0.05 A mg/m³ Als Mn berechnet

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AGW (Germany)	Long-term value: 0.02A; 0.2E mg/m³ 8(II);DFG,Y,10, 20
LEP (Spain)	Long-term value: 0.2* 0.05** mg/m³ VLI, *inhalable, **respirable: d
VLEP (France)	Long-term value: 0.05* 0.20** mg/m³ *fraction alvéolaire **inhalable; en manganèse
WEL (Great Britain)	Long-term value: 0.2* 0.05** mg/m³ as Mn *inhalable fraction **respirable fraction
TWA (Italy)	Long-term value: (0.2) mg/m³ (come Mn)
VL (Italy)	Long-term value: 0.2 mg/m³ Frazione inalabile; come Mn
WGW (Netherland)	Long-term value: 0.2* 0.05** mg/m³ als Mn; *inhaleerbaar **respirabel
CAS: 1310-58-3 potassium hydroxide	
MAK (Austria)	Long-term value: 2 E mg/m³
LEP (Spain)	Short-term value: 2 mg/m³
VLEP (France)	Short-term value: 2 mg/m³
WEL (Great Britain)	Short-term value: 2 mg/m³
TWA (Italy)	Ceiling limit: 2 mg/m³
CAS: 7440-48-4 cobalt	
MAK (Austria)	siehe Anhang III A 2
TRK (Austria)	Short-term value: 0.4E; 2E* mg/m³ Long-term value: 0.1E; 0.5E* mg/m³ *Pulveraufarbeitung, mechanische Bearbeitung
MAK (Germany)	einatembare Fraktion; vgl.Abschn.XIII
LEP (Spain)	Long-term value: 0.02 mg/m³ C1B, TR1B, VLB, Sen
WEL (Great Britain)	Long-term value: 0.1 mg/m³ as Co; Carc, Sen
TWA (Italy)	Long-term value: 0.02 mg/m³ A3, IBE (come Co)
WGW (Netherland)	Long-term value: 0.02 mg/m³ stof en rook (als Co)
CAS: 1310-73-2 sodium hydroxide	
MAK (Austria)	Short-term value: 4 E mg/m³ Long-term value: 2 E mg/m³
MAK (Germany)	vgl.Abschn.IIb
LEP (Spain)	Short-term value: 2 mg/m³
VLEP (France)	Long-term value: 2 mg/m³

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WEL (Great Britain)	Short-term value: 2 mg/m³
TWA (Italy)	Ceiling limit: 2 mg/m³
CAS: 1310-65-2 lithium hydroxide	
MAK (Germany)	vgl. Abschn. IIb
WEL (Great Britain)	Short-term value: 1 mg/m³
CAS: 1314-13-2 zinc oxide	
MAK (Austria)	Long-term value: 5 A mg/m³
MAK (Germany)	Long-term value: 1A mg/m³ Rauch
LEP (Spain)	Short-term value: 10* mg/m³ Long-term value: 2* mg/m³ *Fracción respirable: d
VLEP (France)	Long-term value: 5* 10** mg/m³ *fumées **poussières
TWA (Italy)	Short-term value: 10 mg/m³ Long-term value: 2 mg/m³ (j)
CAS: 7440-66-6 zinc - massive	
MAK (Germany)	Long-term value: 0.1A* 2E** mg/m³ *alveolengängig; **einatembar
CAS: 7429-90-5 aluminium	
MAK (Austria)	Short-term value: 20 E 10 A mg/m³ Long-term value: 10 E 5 A mg/m³ (als Metall)
AGW (Germany)	Long-term value: 1.25* 10** mg/m³ 2(II);*alveolengängig**einatembar; AGS, DFG, Y
LEP (Spain)	Long-term value: 1 mg/m³ d, fracción respirable
VLEP (France)	Long-term value: 5* 10** mg/m³ *pulvérulent **métal
WEL (Great Britain)	Long-term value: 10* 4** mg/m³ *inhalable dust **respirable dust
TWA (Italy)	Long-term value: 1 mg/m³ A4, (j); metallico e composti insolubili
WGW (Netherland)	Long-term value: 0.05* mg/m³ *Metaal en onoplosbare verb., inadembaar (privaat)

Regulatory information
MAK (Austria): GKV 2020, 156. Verordnung, 09.04.2021, Teil II
TRK (Austria): GKV 2020, 156. Verordnung, 09.04.2021, Teil II
AGW (Germany): TRGS 900
LEP (Spain): Límites de exposición profesional para agentes químicos
VLEP (France): ED 1487 05.2021
WEL (Great Britain): EH40/2020

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TWA (Italy): Valori Limite di Soglia
BOELV (EU): EU 2022/431
IOELV (EU): (EU) 2019/1831
VL (Italy): D.lgs. n. 81/2008
WGW (Netherland): Grenswaarden gezondheidsschadelijke stoffen
MAK (Germany): MAK- und BAT-Liste

DNELs		
CAS: 7440-02-0 nickel		
Oral	Long-term exposure - systemic effects	0.011 mg/kg bw/d (consumer)
	short-term exposure - systemic effects	0.37 mg/kg bw (consumer)
Dermal	Long-term exposure - local effects	0.035 mg/cm² (consumer)
		0.035 mg/cm² (workers)
Inhalative	Long-term exposure - systemic effects	0.00006 mg/m³ (consumer)
		0.05 mg/m³ (workers)
	Long-term exposure - local effects	0.00006 mg/m³ (consumer)
		0.05 mg/m³ (workers)
	short-term exposure - local effects	0.8 mg/m³ (consumer)
		11.9 mg/m³ (workers)
CAS: 7439-96-5 manganese		
Dermal	Long-term exposure - systemic effects	0.002 mg/kg bw/d (consumer)
		0.004 mg/kg bw/d (workers)
Inhalative	Long-term exposure - systemic effects	0.041 mg/m³ (consumer)
		0.2 mg/m³ (workers)
	Long-term exposure - local effects	0.041 mg/m³ (consumer)
		0.2 mg/m³ (workers)
CAS: 1310-58-3 potassium hydroxide		
Inhalative	Long-term exposure - systemic effects	1 mg/m³ (workers)
	Long-term exposure - local effects	1 mg/m³ (consumer)
CAS: 7440-48-4 cobalt		
Oral	Long-term exposure - systemic effects	0.0298 mg/kg bw/d (consumer)
Inhalative	Long-term exposure - local effects	0.0063 mg/m³ (consumer)
		0.04 mg/m³ (workers)
CAS: 1310-73-2 sodium hydroxide		
Inhalative	Long-term exposure - local effects	1 mg/m³ (consumer)
		1 mg/m³ (workers)
CAS: 1314-13-2 zinc oxide		
Oral	Long-term exposure - systemic effects	0.83 mg/kg bw/d (consumer)
Dermal	Long-term exposure - systemic effects	83 mg/kg bw/d (consumer)
		83 mg/kg bw/d (workers)

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Inhalative	Long-term exposure - systemic effects	2.5 mg/m³ (consumer)
		5 mg/m³ (workers)
	Long-term exposure - local effects	0.5 mg/m³ (workers)
CAS: 7440-66-6 zinc - massive		
Oral	Long-term exposure - systemic effects	0.83 mg/kg bw/d (consumer)
Dermal	Long-term exposure - systemic effects	83 mg/kg bw/d (consumer)
		83 mg/kg bw/d (workers)
Inhalative	Long-term exposure - systemic effects	2.5 mg/m³ (consumer)
		5 mg/m³ (workers)
CAS: 7429-90-5 aluminium		
Oral	Long-term exposure - systemic effects	7.9 mg/kg bw/d (consumer)
Inhalative	Long-term exposure - systemic effects	3.72 mg/m³ (workers)
	Long-term exposure - local effects	3.72 mg/m³ (workers)

PNECs	
CAS: 7440-02-0 nickel	
fresh water	7.1 µg/l
sea water	8.6 µg/l
STP	0.33 mg/l
sediment (fresh water)	109 mg/kg dw
sediment (sea water)	109 mg/kg dw
soil	29.9 mg/kg dw
oral	0.12 mg/kg food
CAS: 7439-96-5 manganese	
fresh water	0.034 mg/l
sea water	0.003 mg/l
STP	100 mg/l
sediment (fresh water)	3.3 mg/kg dw
sediment (sea water)	0.34 mg/kg dw
soil	3.4 mg/kg dw
CAS: 7440-48-4 cobalt	
fresh water	0.6 µg/l
sea water	2.36 µg/l
STP	0.37 mg/l
sediment (fresh water)	9.5 mg/kg dw
sediment (sea water)	9.5 mg/kg dw
soil	10.9 mg/kg dw
CAS: 1314-13-2 zinc oxide	
fresh water	20.6 µg/l

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sea water	6.1 µg/l
STP	0.1 mg/l
sediment (fresh water)	117.8 mg/kg dw
sediment (sea water)	56.5 mg/kg dw
soil	35.6 mg/kg dw
CAS: 7440-66-6 zinc - massive	
fresh water	20.6 µg/l
sea water	6.1 µg/l
STP	0.1 mg/l
sediment (fresh water)	235.6 mg/kg dw
sediment (sea water)	121 mg/kg dw
soil	106.8 mg/kg dw

Ingredients with biological limit values:	
CAS: 7439-96-5 manganese	
BGW (Germany)	20 µg/l Untersuchungsmaterial: Vollblut Probennahmezeitpunkt: bei Langzeitexposition: am Schichtende nach mehreren vorangegangenen Schichten, Expositionsende bzw. Schichtende Parameter: Mangan
CAS: 7440-48-4 cobalt	
VLB (Spain)	15 µg/l Muestra: en orina Momento de Muestero: Final de la semana laboral Indicador Biológico: Cobalto 1 µg/l Muestra: en sangre Momento de Muestero: Final de la semana laboral Indicador Biológico: Cobalto
IBE (Italy)	15 µg/l Campioni: urine Momento del prelievo: a fine turno a fine settimana lavorativa Indicatore biologico: cobalto 1 µg/l Campioni: sangue Momento del prelievo: a fine turno a fine settimana lavorativa Indicatore biologico: cobalto

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CAS: 7429-90-5 aluminium	
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
VLB (Spain): Límites de exposición profesional para agentes químicos
IBE (Italy): Indici Biologici di Esposizione
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.
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.

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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.
Viscosity:	
Kinematic viscosity	Not applicable.
Dynamic:	Not applicable.
Solubility	
water:	Insoluble.

1314-13-2	zinc oxide	1,6 mg/l

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:	130 °C
Explosive properties:	No information available.
Change in condition	
Softening point/range	
Oxidising properties	No information available.

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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

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
When heated above 150℃ the risk of rupture occurs. Due to special safety construction, rupture implies cont release of pressure without ignition.
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 battery to mechanical shock.
Do not disassemble, crush, short-circuit, or connect with incorrect polarity. Avoid mechanical or electrical abuse.
10.5 Incompatible materials:
strong oxidizing agents
strong acids
10.6 Hazardous decomposition products: In case of fire: see section 5

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

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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: 7440-02-0 nickel		
Oral	LD50	> 9,000 mg/kg (rat)
CAS: 7439-96-5 manganese		
Oral	LD50	9,000 mg/kg (rat)
CAS: 1310-58-3 potassium hydroxide		
Oral	LD50	273 mg/kg (rat)
CAS: 7440-48-4 cobalt		
Oral	LD50	6,170 mg/kg (rat)
CAS: 1310-65-2 lithium hydroxide		
Oral	LD50	363 mg/kg (mouse)
CAS: 1314-13-2 zinc oxide		
Oral	LD50	> 5,000 mg/kg (rat)
Inhalative	LC50/4h	2,500 mg/m³ (mouse)
CAS: 7440-66-6 zinc - massive		
Oral	LD50	> 2,000 mg/kg (rat)
Inhalative	LC50/4h	> 5.41 mg/l (rat)
CAS: 7429-90-5 aluminium		
Oral	LD50	15,900 mg/kg (rat)
Inhalative	LC50/4h	> 888 mg/m³ (rat)

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 Contains nickel dihydroxide.
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.

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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:	
CAS: 1310-58-3 potassium hydroxide	
LC50 (96 h)	80 mg/l (fish) (Gambusia affinis)
CAS: 1310-73-2 sodium hydroxide	
EC50 (48 h)	40.4 mg/l (daphnia) (Ceriodaphnia sp.)
LC50 (96 h)	35 – 189 mg/l (fish)
EC50 (24 h)	76 mg/l (daphnia) (Daphnia magna)
CAS: 1310-65-2 lithium hydroxide	
EC50 (72 h)	1.88 mg/l (algae)
CAS: 1314-13-2 zinc oxide	
LC50 (96 h)	0.169 mg/l (fish) (Onchorhynchus mykiss)

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:
Avoid release to the environment.
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, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.

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.

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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.

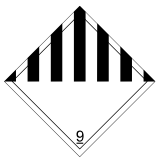
16 06 05	other batteries and accumulators

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 UN3496
14.2 UN proper shipping name
ADR/RID/ADN 3496 Batteries, nickel-metal hydride
IMDG, IATA Batteries, nickel-metal hydride
14.3 Transport hazard class(es)

IMDG, IATA



Class 9 Miscellaneous dangerous substances and articles.
Label 9
14.4 Packing group
ADR/RID/ADN, IMDG, IATA not regulated
14.5 Environmental hazards: Product contains environmentally hazardous substances: nickel dihydroxide
14.6 Special precautions for user Not applicable.
Hazard identification number (Kemler code): -
EMS Number: F-A,S-I
Stowage Category A
Stowage Code SW1 Protected from sources of heat.
14.7 Maritime transport in bulk according to IMO instruments Not applicable.

Transport/Additional information: **Not subject to the provisions of ADR/RID/ADN.**
IATA:
Lighting components, not restricted as per special provision A199.

ADR/RID/ADN
Transport category -
Tunnel restriction code -

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IMDG

Limited quantities (LQ)	0
Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
UN "Model Regulation":	UN 3496 BATTERIES, NICKEL-METAL HYDRIDE, 9

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.
REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 27

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.

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
H290 May be corrosive to metals.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.

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H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H350i May cause cancer by inhalation.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.
H360D May damage the unborn child.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes 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.
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
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
vPvB: very Persistent and very Bioaccumulative
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 1: Acute toxicity – Category 1
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1

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Resp. Sens. 1B: Respiratory sensitisation – Category 1B
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 2: Germ cell mutagenicity – Category 2
Carc. 1A: Carcinogenicity – Category 1Ai
Carc. 1B: Carcinogenicity – Category 1B
Carc. 2: Carcinogenicity – Category 2
Repr. 1B: Reproductive toxicity – Category 1B
Repr. 1B: Reproductive toxicity – Category 1B
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – 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.**