

Safety Data Sheet

according to 29 CFR 1910.1200(g)

NiCd accumulator

Revision date: 07/05/2022

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1. Identification**Product identifier**

NiCd accumulator

Further trade names

NiCd accumulator (wet, filled with caustic potash solution, rechargeable, alkaline, closed)
KL, KM, KH, KGL, KGM, VGL, VGM, TP, TSP, RL, RM, RH and further plastic-steel cells
(nominal voltage: 1.2 V per cell)

Recommended use of the chemical and restrictions on use**Use of the substance/mixture**

Electrical batteries and accumulators

Details of the supplier of the safety data sheet

Company name:	GAZ Geräte- und Akkumulatorenwerk Zwickau GmbH	
Street:	Reichenbacher Str.62-68	
Place:	D-08056 Zwickau	
Telephone:	+49(0)375/86-0	Telefax: +49(0)375/86-443
Contact person:	Jörg Seidel	Telephone: +49(0)375/86-330
e-mail:	joerg.seidel@gaz-gmbh.com	
Internet:	www.gaz-gmbh.com	

Emergency phone number: + 1 872 5888 271 (contact ID: GAZ)**2. Hazard(s) identification****Classification of the chemical****29 CFR Part 1910.1200**

Acute toxicity: Acute Tox. 2 (inhalation)
Acute toxicity: Acute Tox. 4 (oral)
Skin corrosion/irritation: Skin Corr. 1A
Serious eye damage/eye irritation: Eye Dam. 1
Respiratory or skin sensitization: Resp. Sens. 1
Respiratory or skin sensitization: Skin Sens. 1
Germ cell mutagenicity: Muta. 1B
Germ cell mutagenicity: Muta. 2
Carcinogenicity: Carc. 1A
Reproductive toxicity: Repr. 1B
Reproductive toxicity: Repr. 2
Specific target organ toxicity repeated or prolonged exposure: STOT RE 1

Label elements**29 CFR Part 1910.1200****Signal word:** Danger**Pictograms:****Hazard statements**

Harmful if swallowed
Causes severe skin burns and eye damage
May cause an allergic skin reaction
Fatal if inhaled
May cause allergy or asthma symptoms or breathing difficulties if inhaled

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May cause genetic defects
Suspected of causing genetic defects
May cause cancer
May damage fertility or the unborn child
Suspected of damaging fertility or the unborn child
Causes damage to organs through prolonged or repeated exposure

Precautionary statements

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
Wear respiratory protection.
If swallowed: Rinse mouth. Do NOT induce vomiting.
Call a poison center/doctor if you feel unwell.
If on skin: Wash with plenty of Water.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Specific treatment (see Precautionary statements on this label).
Wash contaminated clothing before reuse.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
Immediately call a poison center/doctor.
Specific treatment is urgent (see Precautionary statements on this label).
Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a poison center/doctor.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Immediately call a poison center/doctor.
If exposed or concerned: Get medical advice/attention.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container to an appropriate recycling or disposal facility.

Additional advice on labelling

Product, not subject to labeling

Hazards not otherwise classified

During operation and especially during charging, hydrogen gas and harmful alkali mist may be produced.
Accumulators can deliver high voltages and currents.
The standard IEC 62485-2: 2010 contains safety requirements for batteries and battery systems and describes the basic measures for the protection against hazards caused by electric current, escaping gases and electrolyte.

3. Composition/information on ingredients

Mixtures

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Hazardous components

CAS No	Components	Quantity
1310-58-3	caustic potash, potassium hydroxide	28 - 33 %
7440-43-9	cadmium (non-pyrophoric)	8 - 10 %
21041-95-2	cadmium hydroxide; cadmium dihydroxide	8 - 10 %
55070-72-9	Nickel oxo hydroxide	6 - 7 %
12054-48-7	nickel dihydroxide	6 - 7 %
7440-48-4	cobalt powder	0,21 - 0,8 %

4. First-aid measures**Description of first aid measures****General information**

Under normal use of the product, no adverse health injuries are known or expected.
The following measures are relevant in case of contact with the ingredients inside the electrode.
First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down.

After inhalation

Provide fresh air. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. Call a physician immediately.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary.

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.

After ingestion

Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately.

Most important symptoms and effects, both acute and delayed

Under normal use of the product, no adverse health injuries are known or expected.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire-fighting measures**Extinguishing media****Suitable extinguishing media**

Extinguishing powder, Carbon dioxide (CO₂), Sand
Co-ordinate fire-fighting measures to the fire surroundings.

Specific hazards arising from the chemical

The cells may be overheated by external source or internal short circuit and develop potassium hydroxide mist and / or hydrogen gas. Fire may produce vapors containing cadmium, nickel and combustion products of polyamide.

Special protective equipment and precautions for fire-fighters

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

Additional information

Suppress gases/vapors/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

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The following measures are relevant in case of release of ingredients of the battery:

Personal precautions, protective equipment and emergency procedures

General measures

Provide adequate ventilation. Avoid contact with skin, eyes and clothes. Use personal protection equipment.
Special danger of slipping by leaking/spilling product.

Environmental precautions

Do not allow to enter into surface water or drains.

Methods and material for containment and cleaning up

Other information

At small quantities:
Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal.
At large quantities:
Dike residual material at the relevant sites so that it can not get into drains (channels), ditches and waterways.

Reference to other sections

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

7. Handling and storage

Precautions for safe handling

The following measures are relevant in case of release of ingredients of the battery:

Advice on safe handling

Handle the cells carefully to avoid short circuits or misuse. Do not transport cells without transport plugs. Transport and storage of electrolyte-filled cells only in an upright position. For periods > 3 months, the cells should be deeply discharged, stored between 5°C/41°F and 30°C/86°F and stored in a dry place.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep away from heat. Do not store on an electrically conductive surface.
Store in a cool dry place. Store in a well-ventilated place. Keep cool.

Hints on joint storage

Keep away from: Incompatible materials

8. Exposure controls/personal protection

Control parameters

Exposure limits

CAS No.	Substance	ppm	mg/m ³	f/cc	Category	Origin
7440-43-9	Cadmium (as Cd)	-	0.005		TWA (8 h)	REL
7440-48-4	Cobalt metal dust and fume (as Co)	-	0.05		TWA (8 h)	REL
7440-48-4	Cobalt metal, dust, and fume (asCo)	-	0.1		TWA (8 h)	REL
7440-02-0	Nickel metal and other compounds (as Ni)	0.015	-		TWA (8 h)	REL
7440-02-0	Nickel, metal and insoluble compounds (as Ni)	-	1		TWA (8 h)	REL
1310-58-3	Potassium hydroxide	-	C 2		Ceiling	REL

Exposure controls

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**Appropriate engineering controls**

Under normal conditions of use goggles and gloves should be worn. During each disassembly, cleaning, reassembly of the cells, the prescribed personal protective equipment (goggles, protective gloves made of rubber and rubber apron) must be worn. This must withstand 50% of its KOH solution within the service life.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff.

Eye/face protection

Suitable eye protection: goggles.

Hand protection

Tested protective gloves are to be worn:

Suitable gloves type rubber gloves.

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 have to be replaced at first sign of deterioration.

Protect skin by using protective cream.

Skin protection

Apron

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state:	Solid
Color:	As delivered
Odor:	Odorless
No further information relevant for the battery.	

Other information**Temperature range (surrounding):**

Steel case -40 to +50°C / -40 to 122°F (permanent); -50 to +85°C / -58 to 185°F (temporary)

Plastic case -40 to +50°C / -40 to 122°F (permanent); -50 to +70°C / -58 to 158°F (temporary)

Specific energy

10 - 27 Wh/kg

Wh: Nominal voltage x rated capacity in Ah as defined in the IEC standard

kg: mean weight of the cell in kg

Specific immediate performance

20 - 97 W/kg

W = 0.5 x nominal voltage x Is (Is = discharge current for one second to half the nominal voltage)

kg: mean weight of the cell in kg

Mechanical resistance

As defined in IEC standard.

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10. Stability and reactivity

Reactivity

No hazardous reaction when handled and stored according to provisions.

Chemical stability

The product is stable under storage at normal ambient temperatures.

Possibility of hazardous reactions

No known hazardous reactions.

Conditions to avoid

Temperature > 85°C/185°F
short circuits

Incompatible materials

Acid

Hazardous decomposition products

In case of fire may be liberated: Nickel compounds, cadmium compounds, corrosive vapors

11. Toxicological information

Information on toxicological effects

Toxicocinetics, metabolism and distribution

For the electrodes, while intact, the following information is not applicable. They refer to the interior ingredients and apply to its release. The mixture has not been tested as such.

Acute toxicity

Fatal if inhaled
Harmful if swallowed

ATEmix calculated

ATE (oral) 1104,4 mg/kg; ATE (inhalation vapour) 4,64 mg/l; ATE (inhalation aerosol) 0,471 mg/l

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	Exposure route	Dose	Species	Source	Method
1310-58-3	caustic potash, potassium hydroxide				
	oral	LD50 273 mg/kg	Rat	RTECS	
	dermal	LD50 > 2000 mg/kg			
7440-43-9	cadmium (non-pyrophoric)				
	inhalation vapour	ATE 0,5 mg/l			
	inhalation aerosol	ATE 0,05 mg/l			
21041-95-2	cadmium hydroxide; cadmium dihydroxide				
	oral	ATE 500 mg/kg			
	dermal	ATE 1100 mg/kg			
	inhalation vapour	ATE 11 mg/l			
	inhalation aerosol	ATE 1,5 mg/l			
12054-48-7	nickel dihydroxide				
	oral	LD50 1540 mg/kg	Rat	ECHA Reg.dossier	
	inhalation vapour	ATE 11 mg/l			
	inhalation (4 h) aerosol	LC50 1,2 mg/l	Rat	GESTIS	
7440-48-4	cobalt powder				
	oral	LD50 ca 550 mg/kg	Rat	ECHA Reg.dossier	

Irritation and corrosivity

Causes severe skin burns and eye damage

Causes serious eye damage

Sensitizing effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled (nickel dihydroxide; cobalt powder)

May cause an allergic skin reaction (nickel dihydroxide; cobalt powder)

Carcinogenic/mutagenic/toxic effects for reproduction

May cause genetic defects (cadmium hydroxide; cadmium dihydroxide)

Suspected of causing genetic defects (cadmium (non-pyrophoric); Nickel oxo hydroxide; nickel dihydroxide)

May cause cancer (cadmium (non-pyrophoric); cadmium hydroxide; cadmium dihydroxide; nickel dihydroxide; cobalt powder)

May damage fertility or the unborn child (nickel dihydroxide; cobalt powder)

Suspected of damaging fertility or the unborn child (cadmium (non-pyrophoric))

Specific target organ toxicity (STOT) - single exposure

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

Specific target organ toxicity (STOT) - repeated exposure

Causes damage to organs through prolonged or repeated exposure (cadmium (non-pyrophoric); cadmium hydroxide; cadmium dihydroxide; nickel dihydroxide)

Carcinogenicity (OSHA): Cadmium (CAS 7440-43-9) is listed.

Carcinogenicity (IARC): Cadmium (CAS 7440-43-9) is listed in group 1. Cobalt (CAS 7440-48-4) is listed in group 2B.

Carcinogenicity (NTP): Cadmium (CAS 7440-43-9) is listed in group Known. Cobalt (CAS 7440-48-4) is listed in group RAHC.

Aspiration hazard

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

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Information on other hazards

Endocrine disrupting properties

No information available.

12. Ecological information

Ecotoxicity

For the electrodes, while intact, the following information is not applicable. They refer to the interior ingredients and apply to its release. The mixture has not been tested as such.

Very toxic to aquatic life with long lasting effects.

CAS No	Components					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
1310-58-3	caustic potash, potassium hydroxide					
	Acute fish toxicity	LC50 80 mg/l	96 h	Gambusia affinis	IUCLID	
	Acute algae toxicity	ErC50 ~1998 mg/l				
	Acute crustacea toxicity	EC50 > 2000 mg/l	48 h			
12054-48-7	nickel dihydroxide					
	Acute fish toxicity	LC50 15,3 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	ECHA Reg.dossier	
	Acute algae toxicity	ErC50 2,4 mg/l	72 h	Macroscopic pyrifer	ECHA Reg.dossier	
	Acute crustacea toxicity	EC50 0,0821 mg/l	48 h	Ceriodaphnia dubia	ECHA Reg.dossier	

Persistence and degradability

The product has not been tested.

Bioaccumulative potential

The product has not been tested.

Mobility in soil

The product has not been tested.

Endocrine disrupting properties

No information available.

Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

13. Disposal considerations

Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Must not be disposed together with household garbage.

Do not open, crush, burn.

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.

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14. Transport information

US DOT 49 CFR 172.101

UN/ID number: UN 2795
Proper shipping name: BATTERIES, WET, FILLED WITH ACID
Transport hazard class(es): 8
 Hazard label: 8



Marine transport (IMDG)

UN number: UN 2795
UN proper shipping name: BATTERIES, WET, FILLED WITH ALKALI
Transport hazard class(es): 8
Packing group: -
 Hazard label: 8



Special Provisions: 295
 Limited quantity: 1 L
 Excepted quantity: E0
 EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

UN number: UN 2795
UN proper shipping name: BATTERIES, WET, FILLED WITH ALKALI
Transport hazard class(es): 8
Packing group: -
 Hazard label: 8



Special Provisions: A51 A164 A183 A802
 Limited quantity Passenger: Forbidden
 Passenger LQ: Forbidden
 Excepted quantity: E0
 IATA-packing instructions - Passenger: 870
 IATA-max. quantity - Passenger: 30 kg
 IATA-packing instructions - Cargo: 870
 IATA-max. quantity - Cargo: No limit

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes



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Special precautions for user

Warning: strongly corrosive.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

15. Regulatory information**U.S. Regulations****National Inventory TSCA**

All ingredients are listed.

National regulatory information

RA Section 304 CERCLA:

Potassium hydroxide (1310-58-3): Reportable quantity = 1,000 (454) lbs. (kg)

Cadmium (7440-43-9): Reportable quantity = 10 (4.54) lbs. (kg)

Nickel hydroxide (12054-48-7): Reportable quantity = 10 (4.54) lbs. (kg)

RA Section 311/312 Hazards:

Potassium hydroxide (1310-58-3): Immediate (acute) health hazard

Cadmium (7440-43-9): Delayed (chronic) health hazard, Immediate (acute) health hazard

cadmium hydroxide; cadmium dihydroxide (21041-95-2): Delayed (chronic) health hazard, Immediate (acute) health hazard

Nickel hydroxide (12054-48-7): Delayed (chronic) health hazard, Immediate (acute) health hazard

Cobalt (7440-48-4): Delayed (chronic) health hazard, Immediate (acute) health hazard

RA Section 313 Toxic release inventory:

Cadmium (7440-43-9): De minimis limit = 0.1 %, Reportable threshold = Standard

Nickel hydroxide (12054-48-7): De minimis limit = 0.1 %, Reportable threshold = Standard

Cobalt (7440-48-4): De minimis limit = 0.1 %, Reportable threshold = Standard

an Air Act Section 112(b):

Cadmium (7440-43-9), Nickel hydroxide (12054-48-7), Cobalt (7440-48-4)

State Regulations**Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)**

WARNING: This product can expose you to chemicals including Cadmium (cancer, developmental, reproductive); Nickel hydroxide (cancer, reproductive); Cobalt metal powder (cancer, reproductive), which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16. Other information**Hazardous Materials Information Label (HMIS)**

Health: *3

Flammability: 0

Physical Hazard: 0

NFPA Hazard Ratings

Health: 3

Flammability: 0

Reactivity: 0

Unique Hazard:

**Changes**

Revision date: 07/05/2022

Revision No: 1,1

section 1, 11, 12, 14, 16

Abbreviations and acronyms

CLP: Classification, labelling and Packaging

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REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
IMDG: International Maritime Code for Dangerous Goods
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern
For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Other data

Safety Data Sheet scheduled from:
REACH ChemConsult GmbH, Strehlener Str. 14, D-01069 Dresden
info@reach-chemconsult.com

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

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

