SAFETY DATA SHEET (SDS)

according to

Regulation (EC) No 1907/2006 (REACH), Article 31

CONTENT (by Sections)

Section 1 · IDENTIFICATION

PRODUCT NAME
Training Battery corpuls aed (rechargeable)
Art. No.: 06120.1

PROPER SHIPPING NAME
Lithium-Ion Batteries

PRODUCT IDENTIFICATION

Item	Nominal Value
Nominal Voltage	3.7 V
Energy Content	135 Wh/kg
Type	Lithium-ion battery
Designed for Recharge	Yes

PRODUCT USE

- Battery for training purposes

NOTE: MSDS are intended for use in the workplace. For domestic-use products, refer to consumer labels.

NOTE: Hazard statement relates to battery contents. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically or electrically abused.

BASIC INFORMATION

A lithium-ion battery or Li-ion battery (abbreviated as LIB) is a type of rechargeable battery in which lithium ions move from the negative electrode to the positive electrode during discharge and back when charging. Li-ion batteries use an intercalated lithium compound as one electrode material. The electrolyte, which allows for ionic movement, and the two electrodes are the constituent components of a lithium-ion battery cell.

MANUFACTURER / SUPPLIER

	Battery Manufacturer and Supplier	**Training Battery Legal Manufacturer (Supplier of Safety Data Sheet)**
Company	DYNAMIS Batterien GmbH	GS Elektromedizinische Geräte G. Stemple GmbH
Address	Brühlstr. 15, 78465 Dettingen/Konstanz, Germany	Hauswiesenstrasse 26 86916 Kaufering Germany

EMERGENCY CONTACT INFORMATION

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Company	GS Elektromedizinische Geräte G. Stemple GmbH
Address	Hauswiesenstrasse 26 86916 Kaufering Germany
	Tel.: (+49) 8191-65722-0 Fax: (+49) 8191-65722-22

Section 2 · HAZARDS IDENTIFICATION

Classification of hazardous chemical

Not applicable.

The batteries herein are defined as "articles" under 29 CFR 1910.1200. The batteries are not classified as hazardous according to Regulation (EC) No. 1272/2008.

All chemicals are sealed into the cell box. Risk of exposure is only possible if the integrity of the cell box is mechanically or electrically damaged (by abuse). In these cases contact of Lithium components or electrolyte with skin or eyes shall be avoided.
A ruptured or shorted battery box cause thermal or chemical burns upon contact with skin.
This may be a reproductive hazard.

Classification of Hazard Class
Class 9 – Miscellaneous Dangerous Goods

Hazard Identification
The LO rechargeable batteries are sealed units which are not hazardous when used according to the specifications and recommendations of the manufacturer.
The components which form inside the battery depend on the state of charge (SOC).
In general, the positive electrode contains composite materials, e.g. $LiCoO_2$ mainly; the negative electrode e.g. Graphite (Carbon). The electrolyte is a solution of $LiPF_6$ or similar in organic solvents.

Routes of Entry – Normal use

- Inhalation: N/A
- Skin: N/A
- Ingestion: N/A
- Health Hazard (Acute and Chronic) / Toxicological information: N/A

Classification acc. 67/548/EEC

CAS No	Chemical	MeltP/[°C]	BoilP/[°C]	Expos. Limit	Risk	Safety Advice
12190-79-3	LiCoO2	> 1000	N/A	0.1 mg/m³ OSHA	R22, R43	S2, S22, S24, S26, S36, S37, S43, S45
21324-40-3	LiPF6	160decomp		None Established (OSHA)	R14, R21, R22, R41, R43	S2, S8, S22, S24, S26, S36, S37, S45
Organic Solvents						
96-49-1	EC	38	243	None Established (OSHA)	Inflammable	R21, R22, S2, S24, S26, R41, R42/43 S36, S37, S45
616-38-6	DMC	4	90		Inflammable	
105-58-8	DEC	-43	127		Inflammable	

Risk Definitions:

R14	Reacts with Water
R21	Harmful in contact with skin
R22	Harmful if swallowed
R41	Risk of serious damage to eye
R42/43	May cause sensitization by inhalation and skin contact

R43 May cause sensitization by skin contact

Safety Advices:

S2 Keep out of reach from children
S8 Keep away from moisture
S22 Do not breathe dust
S24 Avoid skin contact
S26 In case of contact with eye: Rinse immediately with plenty of water and seek medical attention
S36 Wear suitable gloves
S45 In case of incident - seek medical attention

Section 3 · COMPOSITION / INFORMATION ON INGREDIENTS

The materials contained in the battery may only become a hazard if the battery cell is disintegrated or if the battery cell is mechanically, thermally or electrically abused.

Components	CAS Number	wt-%
Lithium Cobalt Oxide	12190-79-3	20-40
Aluminium (various forms)	7429-90-5	5-15
Carbon (various forms)	7740-44-0	10-30
Copper	7440-50-8	5-15
Lithium salts	21324-40-3	1-5
Nickel	7440-02-0	0.5-5
Organic Carbonate	102-09-0	10-25
Polymer	9002-88-4	3-10

Section 4 · FIRST-AID MEASURES

First Aid Procedures (in case of leakages)
In case of battery case rupture, fume or fire, evacuate personnel from contaminated area and provide maximum ventilation with air to clean out fumes and gases. Then spray water onto battery or put battery into basin with water.
Medical attention is strongly advised in such cases.

Eyes
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eye lids. See to medical aid.

Skin
Remove contaminated clothes and rinse skin with plenty of water or shower immediately and continue for 15 minutes. Use only soap. Never apply greases or ointments. See to medical aid.

Inhalation
Remove from exposure and move to fresh air, oxygen if available. Seek medical attention. Ventilate the contaminated area.

Ingestion
Drink immediately plenty of water and seek for medical help. Assure that the victim does not aspirate vomited material by use of personal drainage. Assure that mucus does not obstruct the airway. Do not give anything by mouth to an unconscious person.

Section 5 · FIREFIGHTING MEASURES

- Do not dispose of battery in fire – may explode.
- Do not short – circuit battery – may cause burns.

Flash Point (Method Used): N/A

Ignition Temp.: N/A

Flammable Limits: N/A

LEL: N/A

UEL: N/A

Extinguishing Media: Water (Spray or basin), Type D, Carbon Dioxide, Dry Chemical or Foam

Special Fire Fighting Procedures: Self-contained breathing apparatus required

Unusual Fire and Explosion Hazards: Cell may vent if exposed to excessive heat

Hazardous combustion products: CO, CO2, Li Oxide fumes, Phosphorous Oxide, HF, PF3/PF5

Section 6 · ACCIDENTAL RELEASE MEASURES

Steps to Be Taken in Case Material is Released or Spilled
If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate while maximum ventilation is provided. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

- Batteries that are leaking should be handled with rubber gloves.
- Avoid direct contact with electrolyte.

- Wear protective clothing and a positive pressure Self–Contained Breathing Apparatus (SCBA).

Waste Disposal:
It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local, state, and federal requirements.

Section 7 · HANDLING AND STORAGE

Safe handling and storage advice

- The battery should not be opened, destroyed or incinerated, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.
- Do not short circuit terminals or overcharge the battery, force over-discharge, throw into fire or reverse-charge.
- Do not crush or puncture the battery, or immerse in liquids.
- Store the batteries in dry and cool area (below 30 °C). Store batteries in adequate distance from walls.

Precautions to be taken in Handling and Storing
Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided.
Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

Other Precautions

- The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures.
- Do not short or install with incorrect polarity.
- Apply only suitable equipment for charging and discharging. Do not mix cells and batteries of differing age or use history, nor different types or sizes within one assembly

Section 8 · EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cells. Respiratory protection is not necessary during normal (specified) use.

Ventilation: N/A during specified use

Local Exhausts: N/A during spec. use

Special: N/A

Mechanical (General): N/A during spec. use

Special: N/A

Other: N/A

Eye Protection: N/A during spec. use

Protective Gloves: N/A during specified use

Other Protective Clothing or Equipment: N/A

Work / Hygienic Practices: N/A

Section 9 · PHYSICAL AND CHEMICAL PROPERTIES

The batteries described in this Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer. Under normal conditions of use, the solid electrode materials and Gel electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain intact.
For properties of the individual components contained inside the sealed battery see section 2.

Boiling Point: N/A

Vapour Pressure (mm Hg): N/A

Vapour Density (AIR=1): N/A

Solubility in Water: N/A

Appearance and Odour: Sealed round cell metal can, with pos./neg. terminals and overpressure safety vent, PTC

Specific Gravity (H2O=1): N/A

Melting Point: N/A

Evaporation Rate (Butyl Acetate): N/A

Use properties: Secondary (rechargeable) power supply, nominal voltage 3.7V

Temperature:

- Storage, continuous: max. +35 °C
- Storage, occasional: -20 °C to +50 °C
- Discharge, cont.: max. +60 °C
- Discharge, occ.: -20 °C to +60 °C
- Charge, cont./occ.: 0 °C to +45 °C

Energy content, specific: 135 Wh/kg

Section 10 · STABILITY AND REACTIVITY

Stability: Stable Status

Conditions to Avoid: Fire/Heating above specified range (+85 °C), short circuiting tools or solvents, mechanical/electrical abuse.

Incompatibility (Materials to Avoid): Acids, Water, Metal corroding/Oxidizing materials.

Hazardous Decomposition of By-products: Reaction of water with free electrolyte generates HF. HF is corrosive and irritant, and can be very harmful in contact with skin/eyes or when inhaled. Immediate medical attention necessary.

Hazardous Polymerization: Will not occur

In case of leakages: Do not inhale vapors or gases from the cell. See to proper ventilation with air.

Section 11 · TOXICOLOGICAL INFORMATION

Not applicable.
All chemicals are sealed into the cell box. Risk of exposure is only possible if the integrity of the cell box is mechanically or electrically damaged (by abuse).

Routes of Entry - Normal use

- Inhalation: N/A
- Skin: N/A
- Ingestion: N/A
- Health Hazard (Acute and Chronic) / Toxicological information: N/A

Section 12 · ECOLOGICAL INFORMATION

When properly used or disposed of the battery does not present an environmental hazard. When disposed avoid water, rain and snowy conditions for long-term storage.

Section 13 · DISPOSAL CONSIDERATIONS

General: Dispose of batteries according to government regulations.

If batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of unconsumed energy remaining in the spent battery. The battery must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste (or discharged appropriately). Recycling of battery can be done in authorized facility, by a licensed waste carrier.

Section 14 · TRANSPORTATION INFORMATION

Proper shipping name: Lithium-Ion Batteries

UN No.: 3480

Classification of Hazard Class: Class 9 – Miscellaneous Dangerous Goods

IATA DGR 59th Edition (2018), Packing Instruction: 965 – 967

Air Freight: Small Li Ion Batteries (< 20Wh or packs <100 Wh) w/ UN3480/IATA
ICAO Packing Instr. 965 Sec.II
Large Cells and Packs: Considered Class 9, PI 965 Sec. I
Furthermore new restrictions apply since April 1, 2016, which forbid transport of Lithium batteries on passenger aircraft at all and strengthen limits even for small numbers and cells on cargo aircraft.

Sea Freight: Sealed Lithium Batteries - Not restricted, when requirements of IMDG Dangerous Goods Regulations are met (UN3480).

Section 15 · REGULATORY INFORMATION

- International Civil Aviation Organization (ICAO) – Technical Instructions (2017-2018 Ed.)
- International Air Transport Association (IATA) – Dangerous Goods Regulations (59rd Ed., 2018)
- International Maritime Dangerous Goods (IMDG) Code 35-10
- US Hazardous Materials regulations 49 CFR (Code of Federal Reg.), Sec. 173-185

Section 16 · OTHER INFORMATION

Legal Manufacturer Disclaimer
The information contained herein is based on the data available to us and believed to be correct. However, **GS Elektromedizinische Geräte G. Stemple GmbH** makes no warranty, expressed or implied. Users should consider the data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

Legal remark (EU)

These batteries are no "substances" or "mixtures" according to Regulation (EC) No 1907/2006 EC. Instead they have to be regarded as "articles", no substances are intended to be released during handling. Therefore there is no obligation to supply a "safety data sheet according to Regulation (EC) 1907/2006, Article 31".