

625/757 - lithium-ion battery

Material number 625/757

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1. Product and company identification**Product identifier**

Trade name: 625/757 - lithium-ion battery

Relevant identified uses of the substance or mixture and uses advised againstGeneral use: Lithium-ion battery for orthopedic procedures
For commercial user only.**Details of the supplier of the safety data sheet**Company name: Otto Bock Health Care
Street/POB-No.: 3820 W. Great Lakes Drive
Postal Code, city: Salt Lake City, UT 84120
USAWWW: www.ottobockus.com

Telephone: +1 (801) 956-2400

Telefax: +1 (801) 956-2401

Dept. responsible for information:

Quality Department,
Telephone: +1 (801) 954-2304 (7 AM – 3 PM, Mountain Time), Email:
USRegulatory@ottobock.comAdditional information: This safety data sheet pertains to the following products:
625B5-1 - Lithium-Ion Accumulator 2500mAh
625B2-4 - Lithium-Ion Accumulator 2500mAh
757B20 - OTTO BOCK EnergyPack
757B20-1 - OTTO BOCK EnergyPack
757B20-2 - OTTO BOCK EnergyPack
757B20-3 - OTTO BOCK EnergyPack
757B21 - OTTO BOCK EnergyPack
757B21-1 - OTTO BOCK EnergyPack
757B21-2 - OTTO BOCK EnergyPack
757B21-3 - OTTO BOCK EnergyPack
757B500 - Li-Ion Zelle UR-18500 konfektioniert kl./gr. (varying colors)
757B501 - Lithium-Ion Battery**Emergency phone number****CHEMTREC, Telephone: +1 (800) 424-9300****Transport:****CONSULTANK Lutz Harder GmbH (Contract QUALI003)****Telephone: +49 (0)178-4337434 (from USA: 01149 178 4337434)****2. Hazards identification****Emergency overview**

Appearance: Form: solid

Odor: odorless

Classification: This material is classified as not hazardous.

Regulatory status

This material is not considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) and SIMDUT in Canada.

Hazards not otherwise classified

The battery is hermetically sealed.

danger of releasing ingredients, mentioned in section 3, by damaging the battery

- with strong mechanical action,
- in case of heating and/or Fire,
- with influence of water,
- short circuit.

Hazard statements:

Limited evidence of a carcinogenic effect. May cause sensitisation by skin contact.

Information about electrolyte, organic, CAS No. - :

Flammable liquid and vapor. After contact with water: Formation of Hydrogen fluoride.

Vapors irritate eyes, mucous membranes and respiratory system. Vapors may cause drowsiness and dizziness.

see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: Lithium-ion battery - Article.

The chemical materials are stored in a hermetically sealed metal case.

Contains Iron (15-25%), Graphite and Carbon (10-20%), Copper (5-15%), Aluminium (2-6%).

Possibly contains Polyvinylidene fluoride.

Hazardous ingredients:

CAS No.	Designation	Content	Classification
CAS 12190-79-3	Cobalt lithium dioxide	20 - 40 %	Sensitization - skin - Category 1. Carcinogenicity - Category 2.
CAS -	Electrolyte, organic	10 - 20 %	Flammable Liquid - Category 3.

4. First aid measures

General information: In case of damaged battery cases: Release of dangerous ingredients possible. In case of heating: development of gas/vapor possible.

In case of inhalation: In case of damaged battery cases:
Provide fresh air. Keep victim at rest in half upright position. Seek medical attention.

Following skin contact: In case of damaged battery cases / In case of exposure to hazardous ingredients:
Immediately clean with water and soap and, if available, apply a generous amount of polyethylene glycol 400 or protective hand cream.
Take off immediately all contaminated clothing.

After eye contact: In case of damaged battery cases / In case of exposure to hazardous ingredients:
Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Afterwards, consult an ophthalmologist immediately.

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After swallowing: In case of damaged battery cases / In case of exposure to hazardous ingredients:
Drink large quantities of water.
Do not induce vomiting. Risk of perforation in case of vomiting!
Immediately get medical attention. Do not try to neutralize.

Most important symptoms/effects, acute and delayed

No hazardous reaction when handled and stored according to provisions.
In case of damaged battery cases / In case of exposure to hazardous ingredients:
May cause an allergic skin reaction. Vapors may cause drowsiness and dizziness. Other symptoms: respiratory complaints, irritation.

Information to physician

Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:

no data available

Auto-ignition temperature: no data available

Suitable extinguishing media:

Dry chemical powder, Extinguishing agent on the basis of sodium chloride, sodium hydrogen carbonate, limestone, or with metal extinguishing powder.
Only in case of small fires: fire extinguisher class D, metal fire extinguisher.

Extinguishing media which must not be used for safety reasons:

Water, foam.

Specific hazards arising from the chemical

> 212 °F: Generation of heat. Ignition.

In case of fire may be liberated: Toxic metal oxide smoke, toxic gases/vapours, hydrogen fluoride, carbon monoxide and carbon dioxide.

Protective equipment and precautions for firefighters:

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

6. Accidental release measures

Personal precautions:

In case of damaged battery cases:
Eliminate all ignition sources if safe to do so.
Provide fresh air. Avoid exposure.
Wear protective equipment.
In case of development of vapors or dust:
Do not inhale vapors or dust particles.

Environmental precautions:

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary.

Methods for clean-up:

Take up mechanically. Dispose of waste according to applicable legislation.
Avoid generation of dust.

Information about electrolyte, organic, CAS No. - :
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents) and place in closed containers for disposal. Final cleaning.

7. Handling and storage

Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.

Avoid damaged batteries.

In case of damaged battery cases: Avoid exposure.

Precautions against fire and explosion:

Avoid short circuit. Avoid damaged batteries.

In case of damaged battery cases: Eliminate all ignition sources if safe to do so.

Storage

Requirements for storerooms and containers:

Provide adequate ventilation. Store in a dry place.

Protect from: humidity, heat, UV-radiation/sunlight

Storage temperature: -4 °F up to 95 °F.

Air humidity: 45% up to 80%.

Hints on joint storage:

Do not store together with strong acids, strong oxidizing agents.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
12190-79-3	Cobalt lithium dioxide	USA: ACGIH: TWA	0.02 mg/m ³
		USA: NIOSH: TWA	0.05 mg/m ³
		USA: OSHA: TWA	0.1 mg/m ³
7782-42-5	Graphite	USA: ACGIH: TWA	2 mg/m ³
		USA: NIOSH: TWA	2.5 mg/m ³
		USA: OSHA: TWA	15 mg/m ³
		USA: OSHA: TWA	15 mppcf
		USA: OSHA: TWA	5 mg/m ³
7440-50-8	Copper	USA: ACGIH: TWA	0.2 mg/m ³
		USA: ACGIH: TWA	1 mg/m ³
		USA: NIOSH: TWA	1 mg/m ³
		USA: OSHA: TWA	0.1 mg/m ³
		USA: OSHA: TWA	1 mg/m ³
7429-90-5	Aluminium	NIOSH: Ceiling	5 mg/m ³
		USA: ACGIH: TWA	1 mg/m ³
		USA: NIOSH: TWA	10 mg/m ³
		USA: NIOSH: TWA	5 mg/m ³
		USA: OSHA: TWA	15 mg/m ³
		USA: OSHA: TWA	5 mg/m ³

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Biological limit values:

CAS No.	Designation	Type	Limit value	Parameter	Sampling
12190-79-3	Cobalt lithium dioxide	USA: ACGIH-BEI, blood	1 µg/L	Cobalt	end of shift at end of workweek
		USA: ACGIH-BEI, urine	15 µg/L	Cobalt	end of shift at end of workweek

Additional information: The chemical materials are stored in a sealed battery case.

Engineering controls

In case of damaged battery cases: Provide adequate ventilation.

In case of development of vapors or dust:

The use of local exhaust ventilation is recommended.

See also information in chapter 7, section storage.

Personal protection equipment (PPE)

Eye/face protection In case of damaged battery cases:
Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection In case of damaged battery cases:
Protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: rubber - breakthrough time >480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded.
The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!

General hygiene considerations:

In case of damaged battery cases:
Do not inhale vapors or dust particles.
Avoid exposure.
Keep away from sources of ignition. - No smoking.
Wash hands before breaks and after work.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Form: solid
Odor:	odorless
Odor threshold:	no data available
pH value:	no data available
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	no data available
Flash point/flash point range:	no data available
Evaporation rate:	no data available
Flammability:	no data available
Explosion limits:	no data available
Vapor pressure:	no data available
Vapor density:	no data available

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Density:	no data available
Solubility:	no data available
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	no data available
Additional information:	no data available

10. Stability and reactivity

Reactivity: no data available

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions

Fire hazard in case of technical defects.

In case of damaged battery cases:

Flammable liquid and vapor. (Electrolyte)

After contact with water: formation of Hydrogen fluoride.

Conditions to avoid:

> 212 °F: Generation of heat. Ignition.

Protect from: humidity, heat, UV-radiation/sunlight

Avoid short circuit. Avoid damaged batteries.

In case of damaged battery cases:

Keep away from sources of ignition. - No smoking.

Incompatible materials:

Keep away from strong acids and strong oxidizing agents.

In case of damaged battery cases: Keep away from water.

Hazardous decomposition products:

In case of fire may be liberated: Toxic metal oxide smoke, hydrogen fluoride, carbon monoxide and carbon dioxide.

Thermal decomposition: no data available

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11. Toxicological information**Toxicological tests**

Toxicological effects: Acute toxicity (oral): Lack of data.
Acute toxicity (dermal): Lack of data.
Acute toxicity (inhalative): Lack of data.
Skin corrosion/irritation: Lack of data.
Eye damage/irritation: Lack of data.
Sensitisation to the respiratory tract: Lack of data.
Skin sensitisation: Lack of data.
Germ cell mutagenicity/Genotoxicity: Lack of data.
Carcinogenicity: Lack of data.
Reproductive toxicity: Lack of data.
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Lack of data.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

Other information: In case of damaged battery cases:
Cobalt lithium dioxide: Limited evidence of a carcinogenic effect. May cause sensitisation by skin contact.
Information about electrolyte, organic, CAS No. - :
Vapors irritate eyes, mucous membranes and respiratory system.
Vapors may cause drowsiness and dizziness.

12. Ecological information**Ecotoxicity**

Further details: no data available

Mobility in soil

no data available

Persistence and degradability

Further details: Product is not biodegradable.

Additional ecological information

General information: Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary.

13. Disposal considerations**Product**Recommendation: Product contains Metallic oxides.
Recycling or special waste incineration.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.
 Packing can be recycled or disposed of.

14. Transport information

USA: Department of Transportation (DOT)

Identification numbers: UN3090
 Proper shipping name: UN 3090, Lithium metal batteries
 DOT hazard class or division: 9
 Label codes: 9
 Packaging - Exceptions: 185
 Packaging - Non-bulk: 185
 Packaging - Bulk: 185
 Quantity limitations - Passenger aircraft / rail: Forbidden
 Quantity limitations - Cargo only: 35 kg
 Vessel stowage - Location: A



Sea transport (IMDG)

UN number: UN 3480
 Proper shipping name: UN 3480, LITHIUM ION BATTERIES
 IMDG: Class 9, Subrisk -
 Packing Group: -
 EmS: F-A, S-I
 Special provisions: 188, 230, 310, 348, 376, 377
 Limited quantities: 0
 EQ: E0
 Contaminated packaging - Instructions: P903, P908, P909, LP903, LP904
 Contaminated packaging - Provisions: -
 IBC - Instructions: -
 IBC - Provisions: -
 Tank instructions - IMO: -
 Tank instructions - UN: -
 Tank instructions - Provisions: -
 Stowage and handling: Category A. SW19
 Properties and observations: Electrical batteries containing lithium ion encased in a rigid metallic body. Lithium ion batteries may also be shipped in or packed with equipment. Electrical lithium batteries may cause fire due to an explosive rupture of the body caused by improper construction or reaction with contaminants.
 Marine pollutant: no
 Segregation group: none

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Air transport (IATA)

UN/ID number: UN 3480
Proper shipping name: UN 3480, LITHIUM ION BATTERIES
ICAO/IATA: Class 9
Hazard: Miscellaneous
EQ: E0
Passenger Ltd.Qty.: Forbidden
Passenger: Pack.Instr. See 965 - Max. Net Qty/Pkg. See 965
Cargo: Pack.Instr. See 965 - Max. Net Qty/Pkg. See 965
Special Provisioning: A88 A99 A154 A164 A183
ERG: 9F

15. Regulatory information**National regulations - U.S. Federal Regulations**

Cobalt lithium dioxide: TSCA Inventory: listed
TSCA HPVC: not listed

Graphite: TSCA Inventory: listed
TSCA HPVC: not listed
NIOSH Recommendations:
Occupational Health Guideline: 0306

Copper: TSCA Inventory: listed
TSCA HPVC: not listed
Clean Water Act:
Priority Pollutant: yes
Other Environmental Laws:
CERCLA: RQ 5000* lbs.
Marine Pollutant: listed as severe pollutant.
RCRA Groundwater Monitoring: Methods 6010, 7210 / PQL 60, 200
SARA Title III Section 313, Toxic Release: Conc. 1.0% / Threshold Standard
NIOSH Recommendations:
Occupational Health Guideline: 0150*

Aluminium: TSCA Inventory: listed
TSCA HPVC: not listed
Other Environmental Laws:
SARA Title III Section 313, Toxic Release: Conc. 1.0% / Threshold Standard
NIOSH Recommendations:
Occupational Health Guideline: 0022

National regulations - U.S. State Regulations

Cobalt lithium dioxide: California Proposition 65: cancer
Rhode Island HSL: listed

National regulations - Great Britain

Hazchem-Code: 4W

16. Other information

Hazard rating systems:



NFPA Hazard Rating:

Health: 0 (Minimal)

Fire: 1 (Slight)

Reactivity: 1 (Slight)

HMIS Version III Rating:

Health: 0 (Minimal)

Flammability: 1 (Slight)

Physical Hazard: 1 (Slight)

Personal Protection: X = Consult your supervisor

In case of damaged battery cases: NFPA/HMIS: F2

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	1
	X

Reason of change:

Changes in section 8: General revision

Changes in section 14: IMDG 2015

Changes in section 16: NFPA

Date of first version:

10/8/2010

Department issuing data sheet

Contact person:

see section 1: Dept. responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.