

1. Product and company identification

Product identifier

Trade name: 625/757 - lithium-ion battery

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

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

General 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

USA

WWW: www.ottobockus.com

Telephone: +1 (801) 956-2400

Telefax: +1 (801) 956-2401

Department responsible for information:

Quality Department,

Telephone: +1 (801) 954-2304 (7 AM – 3 PM, Mountain Time),

Email: USRegulatory@ottobock.com

Additional information: Corporate headquarters:

Ottobock SE & Co. KGaA

Max-Näder-Straße 15

Duderstadt

Germany

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: Article not subject to hazard labelling or classification.

Regulatory status

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

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 sensitization 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.

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 12190-79-3	Cobalt lithium dioxide	20 - 40 %	Respiratory Sensitizer - Category 1. Sensitization - skin - Category 1. Carcinogenicity - Category 2.
CAS -	Electrolyte, organic	10 - 20 %	Flammable Liquid - Category 3.
CAS 7440-44-0	Carbon	10 - 20 %	not classified

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 skin 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.

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/vapors, 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 appropriate 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 damage to the battery casing.
In case of damaged battery cases: Avoid exposure.

Precautions against fire and explosion:
Avoid short circuit. Avoid damage to the battery casing.
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
7782-42-5	Graphite	USA: ACGIH: TWA	2 mg/m ³ (respirable fraction)
		USA: IDLH: TWA	1,250 mg/m ³
		USA: NIOSH: TWA	2.5 mg/m ³ (respirable fraction)
		USA: OSHA: TWA	15 mg/m ³ (total dust)
		USA: OSHA: TWA	5 mg/m ³ (respirable fraction)
7440-44-0	Carbon	USA: ACGIH: TWA	10 mg/m ³
			(Dust limit value, inhalable fraction)
		USA: ACGIH: TWA	3 mg/m ³
			(Dust limit value, respirable fraction)
		USA: OSHA: TWA	15 mg/m ³ (inhalable fraction)
7440-50-8	Copper	USA: OSHA: TWA	5 mg/m ³ (respirable fraction)
		USA: ACGIH: TWA	0.2 mg/m ³ (Smoke)
		USA: ACGIH: TWA	1 mg/m ³
			(Dusts and mist calculated as Cu)
		USA: IDLH: TWA	100 Cu/m ³ (dust and mist)
7429-90-5	Aluminium	USA: IDLH: TWA	100 Cu/m ³ (Smoke)
		USA: NIOSH: TWA	1 mg/m ³
		USA: OSHA: TWA	0.1 mg/m ³ (Smoke; calculated as Cu)
		USA: OSHA: TWA	1 mg/m ³
			(Dusts and mist calculated as Cu)
		USA: ACGIH: TWA	1 mg/m ³
		USA: NIOSH: Ceiling	5 mg/m ³ (inhalable fraction)
		USA: NIOSH: TWA	10 mg/m ³ (inhalable fraction)
		USA: NIOSH: TWA	5 mg/m ³ (inhalable fraction)
		USA: OSHA: TWA	15 mg/m ³ (inhalable fraction)
		USA: OSHA: TWA	5 mg/m ³ (respirable fraction)

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.

Environmental exposure controls

Refer to 6.: Section "Environmental precautions".

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Form: solid
Odor:	odorless
Odor threshold:	No data available
pH:	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
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:	<p>Fire hazard in case of technical defects.</p> <p>In case of damaged battery cases:</p> <p>Flammable liquid and vapor. (Electrolyte)</p> <p>After contact with water: formation of Hydrogen fluoride.</p>

Conditions to avoid: > 212 °F: Generation of heat. Ignition.
Protect from: humidity, heat, UV-radiation/sunlight
Avoid short circuit. Avoid damage to the battery casing.
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

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.
Serious 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 sensitization 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 containing heavy metals.
Recycling or special waste incineration.

Package

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

14. Transport information

UN number

ADR/RID, IMDG, IATA-DGR:
UN 3480

UN proper shipping name

ADR/RID, IMDG, IATA-DGR:
UN 3480, LITHIUM ION BATTERIES

Transport hazard class(es)

ADR/RID: Class 9, Code: M4
IMDG: Class 9, Subrisk -
IATA-DGR: Class 9



Packing group

ADR/RID, IATA-DGR: not applicable
IMDG: -

Environmental hazards

Marine pollutant: no

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

No data available

USA: Department of Transportation (DOT)

Identification number: UN3090
 Proper shipping name: UN 3090, LITHIUM METAL BATTERIES
 Hazard class or Division: 9
 Labels: 9
 Special Provisions: 388, 422, A54
 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
 Vessel stowage – Other: 156



Sea transport (IMDG)

UN number: UN 3480
 Proper shipping name: UN 3480, LITHIUM ION BATTERIES
 Class or division, Subsidiary risk: Class 9, Subrisk -
 Packing Group: -
 EmS: F-A, S-I
 Special Provisions: 188 230 310 348 376 377 384 387
 Limited quantities: 0
 Excepted quantities: E0
 Package - Instructions: P903, P908, P909, P910, P911, LP903, LP904, LP905, LP906
 Package - 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 may react (e.g., flame, heat, emission of toxic, corrosive or flammable gases or vapours) or disassemble due to damage, defects or short circuit.
 Marine pollutant: no
 Segregation group: none

Air transport (IATA)

UN/ID number: UN 3480
 Proper shipping name: UN 3480, LITHIUM ION BATTERIES
 Class or division, Subsidiary risk: Class 9
 Hazard label: Lithium batt or Sodium-ion batt
 Excepted Quantity Code: E0
 Passenger and Cargo Aircraft: Ltd.Qty.: Forbidden
 Passenger and Cargo Aircraft: Forbidden
 Cargo Aircraft only: Pack.Instr. See 965 - Max. Net Qty/Pkg. See 965
 Special Provisions: A88 A99 A154 A183 A201 A213 A331 A334 A802
 Emergency Response Guide-Code (ERG): 12FZ

15. Regulatory information

National regulations - U.S. Federal Regulations

This product is an article as defined by TSCA regulations, and is exempt from TSCA inventory listing requirements.

National regulations - U.S. State Regulations

No data available

National regulations - Canada

Cobalt lithium dioxide: DSL: listed

Graphite: DSL: listed

Carbon: DSL: listed

Copper: DSL: listed

Aluminium: DSL: listed

National regulations - Great Britain

Hazchem-Code: 2Y

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

Abbreviations and acronyms:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

AS/NZS: Australian Standards/New Zealand Standards

Carcinogenicity: Carcinogenicity

CAS: Chemical Abstracts Service

CFR: Code of Federal Regulations

CLP: Classification, Labelling and Packaging

DMEL: Derived minimal effect level

DNEL: Derived no-effect level

EC: European Community

EmS: Emergency Response Procedures for Ships Carrying Dangerous Goods

EN: European Standard

EQ: Excepted quantities

Flammable Liquid: Flammable liquid

IATA: International Air Transport Association

IATA-DGR: International Air Transport Association – Dangerous Goods Regulations

IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

IMDG Code: International Maritime Dangerous Goods Code

IMO: International Maritime Organization

MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships

OEL: Occupational Exposure Limit Value

OSHA: Occupational Safety and Health Administration

PBT: Persistent, bioaccumulative and toxic

PNEC: Predicted no-effect concentration

Respiratory Sensitizer: Sensitisation to the respiratory tract

RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail

Sensitization - skin: Skin sensitisation

TLV: Threshold Limit Value

TRGS: Technical Rules for Hazardous Substances

TSCA: Toxic Substance Control Act

UN: United Nations

UV: Ultraviolet

vPvB: Very persistent and very bioaccumulative

WEL: Workplace Exposure Limit

Reason of change: Changes in section 14: IMDG 2025

Date of first version: 10/8/2010

Department issuing data sheet

Contact person: see section 1: Department 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.