

## 1. Product and company identification

### Product identifier

Trade name: 757B16 - BiOM T2 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](http://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](mailto: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. Cell may explode

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.

Electrolyte:

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

After contact with water: Formation of Hydrogen fluoride. Causes severe skin burns and eye damage. Toxic if swallowed.

see section 11: Toxicological information

### 3. Composition / Information on ingredients

Chemical characterization: Lithium-ion battery - Article, Cell.

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

Contains: Metal oxide (20% - 50%), Carbon (15% - 35%), Aluminium (3% - 12%), Copper (3% - 12%), Polyvinylidene fluoride (< 8%)

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS -	electrolyte	10 - 20 %	Flammable Liquid - Category 3.
CAS 7439-93-2	Lithium	< 1.5 %	Water-reactive - Category 1. Skin Corrosion - Category 1B.

### 4. First aid measures

General information: In case of damaged battery cases: Release of dangerous ingredients possible.

In case of inhalation: In case of damaged battery cases / In case of exposure to hazardous ingredients: 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: Wash with plenty of water.

Take off immediately all contaminated clothing. Seek medical attention.

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. Never give anything by mouth to an unconscious person. Do not induce vomiting. Immediately get medical attention.

### Most important symptoms/effects, acute and delayed

With correct and proper handling/application, no cases health hazards are known.

In case of damaged battery cases:

May cause sensitization by skin contact.

Irritation. Vapors may cause drowsiness and dizziness.

### 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:

sand, Extinguishing agent on the basis of sodium chloride, sodium hydrogen carbonate, limestone, or with metal extinguishing powder.

Extinguishing media which must not be used for safety reasons:

Water.

### Specific hazards arising from the chemical

In case of heating > 266 °F: Cell may explode.

Hazardous vapors may form during fires.

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

Protective equipment and precautions for firefighters:

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

Additional information:

Remove product from area of fire.

## 6. Accidental release measures

Personal precautions:

Avoid damage to the battery casing. In case of damaged battery cases: Avoid exposure. Eliminate all ignition sources if safe to do so. Provide fresh air. Avoid contact with skin and eyes.

Wear suitable gloves. Do not inhale vapors or dust particles. Keep unprotected people away.

Environmental precautions:

Discharge into the environment must be avoided.

Methods for clean-up:

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

Electrolyte: 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 fresh air. Avoid contact with skin and eyes.

Wear suitable gloves. Do not inhale vapors or dust particles.

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: Remove all sources of ignition.

## Storage

Requirements for storerooms and containers:

Provide adequate ventilation. Store in a dry place.

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

Store only in corrosive resistant containers.

Hints on joint storage:

Keep away from: Acids, bases.

Further details:

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

## 8. Exposure controls / personal protection

### Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
7440-44-0	Carbon	USA: ACGIH: TWA	10 mg/m <sup>3</sup>
			(Dust limit value, inhalable fraction)
		USA: ACGIH: TWA	3 mg/m <sup>3</sup>
			(Dust limit value, respirable fraction)
		USA: OSHA: TWA	15 mg/m <sup>3</sup> (inhalable fraction)
7429-90-5	Aluminium	USA: OSHA: TWA	5 mg/m <sup>3</sup> (respirable fraction)
		USA: ACGIH: TWA	1 mg/m <sup>3</sup>
		USA: NIOSH: Ceiling	5 mg/m <sup>3</sup> (inhalable fraction)
		USA: NIOSH: TWA	10 mg/m <sup>3</sup> (inhalable fraction)
		USA: NIOSH: TWA	5 mg/m <sup>3</sup> (inhalable fraction)
		USA: OSHA: TWA	15 mg/m <sup>3</sup> (inhalable fraction)
		USA: OSHA: TWA	5 mg/m <sup>3</sup> (respirable fraction)
7440-50-8	Copper	USA: ACGIH: TWA	0.2 mg/m <sup>3</sup> (Smoke)
		USA: ACGIH: TWA	1 mg/m <sup>3</sup>
			(Dusts and mist calculated as Cu)
		USA: IDLH: TWA	100 Cu/m <sup>3</sup> (dust and mist)
		USA: IDLH: TWA	100 Cu/m <sup>3</sup> (Smoke)
		USA: NIOSH: TWA	1 mg/m <sup>3</sup>
		USA: OSHA: TWA	0.1 mg/m <sup>3</sup> (Smoke; calculated as Cu)
		USA: OSHA: TWA	1 mg/m <sup>3</sup>
			(Dusts and mist calculated as Cu)

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:	In case of damaged battery cases: 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, self-contained breathing apparatus must be used.
General hygiene considerations:	In case of damaged battery cases: Do not inhale vapors or dust particles. Avoid contact with skin and eyes. 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
Water solubility:	immiscible
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: Electrolyte: Flammable. After contact with water: formation of Hydrogen fluoride.
Conditions to avoid:	> 266 °F: Cell may explode. Protect from: humidity, heat, UV-radiation/sunlight Avoid short circuit. Avoid damage to the battery casing. In case of damaged battery cases: Protect from: water. Keep away from sources of ignition - No smoking.
Incompatible materials:	Acids, bases. In case of damaged battery cases: Keep away from water.
Hazardous decomposition products:	In case of fire may be liberated: hydrogen fluoride, hydrogen, 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: Limited evidence of a carcinogenic effect. May cause sensitization by skin contact. Electrolyte, organic: Vapors irritate eyes, mucous membranes and respiratory system. Vapors may cause drowsiness and dizziness.

## 12. Ecological information

### Ecotoxicity

Further details: in case of damaged battery cases:  
ingredient(s): bioaccumulation possible.

### Mobility in soil

No data available

### Persistence and degradability

Further details: Product is not biodegradable.

### Additional ecological information

General information: Discharge into the environment must be avoided.

## 13. Disposal considerations

### Product

Recommendation: Dispose of waste according to applicable legislation.

### 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: UN3480  
 Proper shipping name: UN 3480, LITHIUM ION BATTERIES  
 Hazard class or Division: 9  
 Labels: 9  
 Special Provisions: 388, 422, A54, A100  
 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

### Further information

In compliance with Special provision IATA 965



## 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

Carbon: DSL: listed

Aluminium: DSL: listed

Copper: DSL: listed

Polyvinylidene fluoride: DSL: listed

Lithium: DSL: listed

### National regulations - Great Britain

Hazchem-Code: 2Y

## 16. Other information

Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)

Fire: 1 (Slight)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight)

Flammability: 1 (Slight)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

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

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
	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

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

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

Skin Corrosion: Skin corrosion

# SAFETY DATA SHEET

according to 29 CFR 1910.1200 and ANSI standard Z400.1-2010

## 757B16 - BiOM T2 Battery

Material number 757B16

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Version: 5.2

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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

Water-reactive: Water-reactive

WEL: Workplace Exposure Limit

Reason of change: Changes in section 14: IMDG 2025

Date of first version: 5/30/2016

### 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.