

**757B38 - emPOWER Battery**

Material number 757B38

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## 1. Product and company identification

**Product identifier**

Trade name: 757B38 - emPOWER 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  
USAWWW: [www.ottobockus.com](http://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.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: Physical state at 68 °F and 101.3 kPa: solid  
Color: varying

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) and SIMDUT in Canada.

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**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:

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

Toxic if swallowed or if inhaled. Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause cancer by inhalation.

Very toxic to aquatic life with long lasting effects.

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

see section 11: Toxicological information

**3. Composition / Information on ingredients**

Chemical characterization: Lithium-ion battery - Article, contains:

Metals (inert)

Electrode, negative: Graphite

Electrode, positive: lithium oxides (Cobalt, Nickel, Manganese)

Electrolyte: Lithium hexafluorophosphate, carbonates (organic)

Relevant ingredients:

CAS No.	Designation	Content	Classification
CAS 1307-96-6	Cobalt oxide	< 30 %	Acute Toxicity - oral - Category 3. Acute Toxicity - inhalative - Category 2. Respiratory Sensitizer - Category 1. Sensitization - skin - Category 1. Aquatic toxicity - acute - Category 1. Aquatic toxicity - chronic - Category 1.
CAS 1313-13-9	Manganese dioxide	< 30 %	Acute Toxicity - oral - Category 4. Acute Toxicity - inhalative - Category 4.
CAS 1313-99-1	Nickel monoxide	< 30 %	Sensitization - skin - Category 1. Carcinogenicity - Category 1A. Specific Target Organ Toxicity (Repeated Exposure) - Category 1. Aquatic toxicity - chronic - Category 4.
CAS 21324-40-3	Lithium hexafluorophosphate	< 20 %	Acute Toxicity - oral - Category 3. Skin Corrosion - Category 1A. Eye Damage - Category 1. Specific Target Organ Toxicity (Repeated Exposure) - Category 1.
CAS -	electrolyte	< 20 %	Flammable Liquid - Category 2. Skin Irritation - Category 2. Eye Damage - Category 1. Specific Target Organ Toxicity (Single Exposure) - Category 3.
CAS 7440-50-8	Copper	2 - 10 %	Acute Toxicity - oral - Category 4. Aquatic toxicity - acute - Category 1. Aquatic toxicity - chronic - Category 2.

Hazardous impurities      Mercury (Hg): < 0.1 mg/kg  
                                     Cadmium (Cd): < 1 mg/kg  
                                     Lead (Pb): < 10 mg/kg

Additional information:      Contains carbon, aluminium and Polyvinylidene fluoride: The maximum workplace exposure limits are, where necessary, listed in section 8.

**4. First aid measures**

General information:      In case of damaged battery cases: Release of dangerous ingredients possible. The product may release harmful vapours by heating.

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:  
                                     Clean with plenty of water. If possible, also wash with polyethylene glycol 400.  
                                     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. Do not induce vomiting. Risk of perforation in case of vomiting!  
                                     Immediately get medical attention. Do not try to neutralize.

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

No hazardous reaction when handled and stored according to provisions.

In case of damaged battery cases: Toxic if swallowed or if inhaled. Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause cancer by inhalation.

**Information to physician**

Treat symptomatically.

**5. Fire fighting measures**

Flash point/flash point range:

Not applicable

Auto-ignition temperature: No data available

Suitable extinguishing media:

Only in case of small fires: metal fire extinguisher, sand

In case of large fires: water spray jet, dry chemical powder

**Specific hazards arising from the chemical**

In case of fire may be liberated: Hydrogen fluoride, carbon monoxide and carbon dioxide, Metal oxide smoke

Protective equipment and precautions for firefighters:

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

Additional information:

Cool endangered containers with water spray and, if possible, remove from danger zone. Temperatures > 257 °F: Danger of explosion!

Do not allow fire water to penetrate into surface or ground water.

**6. Accidental release measures**

Personal precautions:

In case of damaged battery cases:

Remove all sources of ignition.

Provide fresh air. Avoid contact with skin and eyes.

Wear suitable gloves.

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:

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 open flames.
- Avoid temperatures exceeding 158 °F.
- 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. Keep only in original container.
- Protect from: humidity, heat, UV-radiation/sunlight
- Storage temperature: approx. 68 °F at approx. 3.6 - 3.9 V/Cell

Hints on joint storage:

- Do not store together with strong acids, strong oxidizing agents.
- Keep away from food, drink and animal feedingstuffs.

**8. Exposure controls / personal protection**

**Exposure guidelines**

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
7440-44-0	Carbon	USA: OSHA: TWA	15 mg/m <sup>3</sup>
		USA: OSHA: TWA	5 mg/m <sup>3</sup>
7429-90-5	Aluminium	NIOSH: Ceiling	5 mg/m <sup>3</sup>
		USA: ACGIH: TWA	1 mg/m <sup>3</sup>
		USA: NIOSH: TWA	10 mg/m <sup>3</sup>
		USA: NIOSH: TWA	5 mg/m <sup>3</sup>
		USA: OSHA: TWA	15 mg/m <sup>3</sup>
		USA: OSHA: TWA	5 mg/m <sup>3</sup>
7440-50-8	Copper	USA: ACGIH: TWA	0.2 mg/m <sup>3</sup>
		USA: ACGIH: TWA	1 mg/m <sup>3</sup>
		USA: NIOSH: TWA	1 mg/m <sup>3</sup>
		USA: OSHA: TWA	0.1 mg/m <sup>3</sup>
		USA: OSHA: TWA	1 mg/m <sup>3</sup>

**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.

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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 contact with skin and eyes.  
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:	Physical state at 68 °F and 101.3 kPa: solid Color: varying
Odor:	odorless
Odor threshold:	No data available
pH value:	not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	No data available
Flash point/flash point range:	Not applicable
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:	insoluble
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.

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Conditions to avoid: In case of strong heating: development of gas/vapor possible.  
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 water. Keep away from sources of ignition - No smoking.

Incompatible materials: Keep away from strong acids and strong oxidizing agents.

Hazardous decomposition products: No decomposition when used properly.

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:  
Toxic if swallowed or if inhaled. Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause cancer by inhalation.

## 12. Ecological information

### Ecotoxicity

Aquatic toxicity: In case of damaged battery cases:  
Very toxic to aquatic life with long lasting effects.

### Mobility in soil

No data available

### Persistence and degradability

Further details: Product is not biodegradable.

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**Additional ecological information**

Volatile organic compounds (VOC):

0 % by weight

General information:

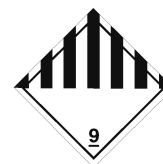
Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary.

**13. Disposal considerations****Product**

Recommendation: Dispose of waste according to applicable legislation.

**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 number: UN3480  
Proper shipping name: UN 3480, UN 3480, LITHIUM ION BATTERIES  
Hazard class or Division: 9  
Labels: 9  
Special provisions: 422, A51, A54  
Packaging – Exceptions: 185  
Packaging – Non-bulk: 185  
Packaging – Bulk: 185  
Quantity limitations – Passenger aircraft / rail:  
5 kg  
Quantity limitations – Cargo only: 35 kg  
Vessel stowage – Location: A





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**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  
Limited quantities: 0  
Excepted quantities: E0  
Contaminated packaging - Instructions: P903, P908, P909, P910, 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

**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: Miscellaneous Lithium 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 A164 A183 A201 A206 A331  
Emergency Response Guide-Code (ERG): 9F

**15. Regulatory information**

**National regulations - U.S. Federal Regulations**

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

Nickel monoxide: Carcinogen Status:  
IARC Rating: Group 1  
OSHA Carcinogen: not listed  
NTP Rating: listed

Carbon: NIOSH Recommendations:  
Occupational Health Guideline: 0307

Aluminium: Other Environmental Laws:  
SARA Title III Section 313, Toxic Release: Conc. 1.0% / Threshold Standard  
NIOSH Recommendations:  
Occupational Health Guideline: 0022

Copper: 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\*

**National regulations - U.S. State Regulations**

Cobalt oxide: California Proposition 65:  
cancer  
Rhode Island HSL: listed

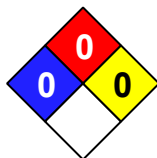
Nickel monoxide: California Proposition 65:  
cancer  
Rhode Island HSL: listed

**National regulations - Great Britain**

Hazchem-Code: 4W

**16. Other information**

Hazard rating systems:



NFPA Hazard Rating:  
Health: 0 (Minimal)  
Fire: 0 (Minimal)  
Reactivity: 0 (Minimal)

HMIS Version III Rating:  
Health: 0 (Minimal)  
Flammability: 0 (Minimal)  
Physical Hazard: 0 (Minimal)  
Personal Protection: X = Consult your supervisor

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	0
	X

In case of damaged battery cases: NFPA/HMIS: H3 / F2

Reason of change: Changes in section 1.3: Corporate headquarters

Date of first version: 3/2/2017



# SAFETY DATA SHEET

in accordance with 29 CFR 1910.1200 and ANSI standard Z400.1-2010

## 757B38 - emPOWER Battery

Material number 757B38

Revision date: 3/22/2018

Version: 3

Language: en-US

Date of print: 5/24/2018

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### 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.