

1. Product and company identification

Product identifier

Trade name: BBI-2200S - Split cell 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: Physical state at 68 °F and 101.3 kPa: solid

Color: silvery

Odor: No data available

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:

In contact with water releases flammable gases. Formation of Hydrogen fluoride.

Toxic if swallowed. 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. Causes damage to organs through prolonged or repeated exposure.

Harmful to aquatic life with long lasting effects.

Vapors irritate eyes, mucous membranes and respiratory system.

see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: Lithium-ion battery - Article, contains:
Metals (inert), aluminium-plastic film, PCB

Electrolyte: Lithium hexafluorophosphate

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

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 12190-79-3	Cobalt lithium dioxide	40 %	Respiratory Sensitizer - Category 1. Sensitization - skin - Category 1. Carcinogenicity - Category 2.
CAS 21324-40-3	Lithium hexafluorophosphate	15 %	Acute Toxicity - oral - Category 3. Skin Corrosion - Category 1A. Eye Damage - Category 1. Specific Target Organ Toxicity (Repeated Exposure) - Category 1.
CAS 7440-50-8	Copper	10 %	Acute Toxicity - oral - Category 4. Aquatic toxicity - acute - Category 1 (M-factor = 10). Aquatic toxicity - chronic - Category 2.

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

4. First aid measures

General information: First aider: Pay attention to self-protection!
In case of damaged battery cases /
In case of exposure to hazardous ingredients: Release of dangerous ingredients possible.
The product may release harmful vapors 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. Remove contact lenses, if present and easy to do. Continue rinsing. 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. Never give anything by mouth to an unconscious person. 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: Toxic if swallowed. 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. Causes damage to organs through prolonged or repeated exposure.

Information to physician

Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:

Not applicable

Auto-ignition temperature: 266 °F

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

After contact with water: Formation of hydrogen fluoride

In case of fire may be liberated: Hydrogen fluoride, carbon monoxide and carbon dioxide, metal oxide smoke, toxic gases/vapors

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.

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. If necessary, notify appropriate authorities.

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.
Additional information:	Danger of releasing ingredients, mentioned in section 3, by damaging the battery: <ul style="list-style-type: none">- with strong mechanical action,- in case of heating and/or fire,- with influence of water,- short circuit.

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. Work place should be equipped with a shower and an eye rinsing apparatus.
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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.
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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. 32 °F up to 95 °F at approx. 3.7 - 4.2 V/Cell
Hints on joint storage:	Keep away from water, acids, bases and 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
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)
7440-50-8	Copper	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)
		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
7429-90-5	Aluminium		(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)

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: neoprene or nitrile rubber 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 contact with skin and eyes.
Keep away from sources of ignition - No smoking.
Wash hands before breaks and after work. When using do not eat or drink.
Keep away from food, drink and animal feedingstuffs.
Work place should be equipped with a shower and an eye rinsing apparatus.

Environmental exposure controls

Refer to 6.: Section "Environmental precautions".

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Physical state at 68 °F and 101.3 kPa: solid Color: silvery
Odor:	No data available
Odor threshold:	No data available
pH:	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:	266 °F
Thermal decomposition:	> 257 °F: Danger of explosion!
Additional information:	No data available

10. Stability and reactivity

Reactivity:	In case of damaged battery cases: May be corrosive to metals. Keep away from food, drink and animal feedingstuffs.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Fire hazard in case of technical defects. In case of damaged battery cases: In contact with water releases flammable gases. Formation of Hydrogen fluoride

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 water, acids, bases and oxidizing agents.

Hazardous decomposition products: No decomposition when used properly.

Thermal decomposition: > 257 °F: Danger of explosion!

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 / In case of exposure to hazardous ingredients:
Toxic if swallowed. 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. Causes damage to organs through prolonged or repeated exposure.

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.

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: Dispose of waste according to applicable legislation. The 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: 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

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

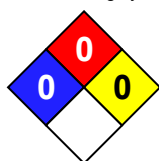
Cobalt lithium dioxide: DSL: listed
Graphite: DSL: listed
Lithium hexafluorophosphate: NDSL: listed
Copper: DSL: listed
Aluminium: DSL: listed

National regulations - Great Britain

Hazchem-Code: 2Y

16. Other information

Hazard rating systems:



NFPA Hazard Rating:

Health: 0 (Minimal)
Fire: 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

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

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	0
	X

Abbreviations and acronyms:

Acute Toxicity: Acute toxicity
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
Aquatic toxicity - acute: Hazardous to the aquatic environment - acute
Aquatic toxicity - chronic: Hazardous to the aquatic environment - chronic
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
Eye Damage: Eye damage
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
M-factor: Multiplication factor
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
Skin Corrosion: Skin corrosion
STOT RE: Specific target organ toxicity - repeated exposure
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: 4/18/2017

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.