Safety Data Sheet

dentronix

LED 3000 LED Lithium-Ion Battery

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product Name: LED 3000 LED Lithium-Ion Battery

Product Code(s): 60013947, (LED 3000 Curing Light), 60013952 (Battery Pack)

Relevant identified uses of the mixture and uses advised against: The LED 3000 is a lithium-ion, battery powered medical device which can be used for intra- and extra-oral polymerization of visible light cured dental materials with Camphorquinone (CQ) photoinitiators. The peak wavelength output is 455 nm – 465 nm. . Not intended for the general public. Federal law restricts this device to sale by or on the order of a physician. Uses advised against: None noted.

Synonyms: None.

(Battery)
Manufactured by:
Yoku Energy (Zhangzhou) Co., Ltd.
Yoku Industrial Zone
Nanjing, Zhangzhou, Fujian
Phone: 0596-7666111

(LED 3000 CURING LIGHT)
Dentronix, Inc.
235 Ascot Parkway
Cuyahoga Falls, OH 44223 / USA
Phone: 1 800 523 5944
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Emergency Contact Number:
USA & Canada: 1 800 535 5053

Copies of this SDS can be found at www.dentronix.com

Section 2: HAZARDS IDENTIFICATION

Appearance: Cuboid (rectangular plastic box with circuit boards and nickel-plated metal canister cells inside). No odor.
Contains: Aluminum Foil, Biphenyl (BP),Copper Foil, Linear and Cyclic Carbonate Solvents, Graphite Powder, Lithium Cobaltite (LiCoO2), Lithium Hexafluorophosphate (LiPF6), Poly (vinylidene fluoride) (PVDF), Steel, Nickel and Inert Polymer
Route(s) of Exposure: Upon breakage - Dermal (Skin / Eye), Inhalation, Ingestion

IMPORTANT NOTE:

This Safety Data Sheet is provided as service in response to requests for information on battery use, safety and regulatory compliance. Under most national regulations, batteries are considered “articles” and not subject to SDS requirements for “hazardous chemicals” in the workplace. Additionally, batteries are considered “articles” under the Global Harmonized System and are exempt from GHS labeling and SDS classification criteria. Under normal conditions of battery use, internal components will not present a health hazard. The following information is provided for battery electrolyte (acid) for exposure that may occur during container breakage or under extreme heat conditions such as fire.

Classifications: See Classifications Below

Acute Toxicity 3,
Eye Irritant 2,
STOT-SE 3,
Skin Sensitizer 1,
Skin Corrosion 1B,

Skin Irritation 2,
Aquatic Acute 1,
Aquatic Chronic 1

Upon exposure to the electrolyte solution within the battery, the information below applies:

Signal Word: DANGER
Hazard statements: Causes severe skin burns and eye damage. Causes skin irritation. May cause an allergic skin reaction Causes serious eye irritation. May cause respiratory irritation. Very toxic to aquatic life Very toxic to aquatic life with long lasting effects
Prevention: Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Store in a well-ventilated area. Store locked up. Dispose of contents/container to recycling or hazardous waste. Wash contaminated clothing before reuse.
Response: Immediately call a POISON CENTER or a doctor/physician. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: get medical advice/attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical attention. Collect spillage.
Storage: Keep in a dry, cool and well-ventilated place, preferably in the temperature range of +5 to +25°C at 65%(+-5%) relative humidity.
Disposal: Dispose of battery and/or released electrolyte in accordance with local/ regional/ national/ international regulations.

Other hazards which do not result in classification: Batteries should be disposed as hazardous waste or sent to a designated recycling center. The electrolyte within the batteries are very toxic to the aquatic environment with long lasting effects.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components:

Ingredient	**CAS Number**	**% by Wt.**
Aluminum Foil	7429-90-5	0.1-1
Biphenyl (BP)	92-52-4	0.1-0.3 w/v
Copper Foil	7440-50-8	0.1-1
Linear and Cyclic Carbonate Solvents	N/A	5-17
Graphite, powder	7440-44-0	10-30
Lithium Cobaltite (LiCoO2)	12190-79-3	10-30
Lithium Hexafluorophosphate (LiPF6)	21324-40-3	1-5
Poly (vinylidene fluoride) (PVDF)	24937-79-9	0.1-1
Steel, nickel and inert polymer	N/A	Balance

Section 4: FIRST AID MEASURES

Inhalation: Not an inhalation hazard.

Skin Contact: Not a health hazard. In case of skin contact with electrolyte, wash with copious amounts of water and seek first aid.

Eye Contact: Not an eye hazard. In case of eye contact with a leaking cell, flush with copious amounts of tempered water for at least 20 minutes and seek first aid.

Ingestion: If swallowed (single cell from battery), seek emergency medical aid. If patient choking and can partially breathe, encourage patient to cough. Do not strike patient's back. This may lodge cell further in throat. If a patient is not breathing, perform standing Heimlich maneuver until object is dislodged or patient becomes unconscious. An unconscious patient should be lowered gently to the floor on their back and abdominal thrusts performed continuously until cell is ejected from throat or medical aid arrives.

Section 5: FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical, Foam, or CO_2

Specific Hazards Arising from the Chemical: Smoke may contain irritants to skin, eyes, and respiratory tract. The battery packs are constructed of many small cells. Cells can expel hot gas and smoke if they are exposed to temperatures of greater than 130ºC for more than 10 minutes. CO2 or chemical powder may extinguish flammable materials surrounding battery, but battery container must be collected to prevent restart of fire. Water is a suitable material for extinguishing flames and cooling battery. Wait until there is no new release of smoke for 1 hour before assuming the battery is extinguished. Residue left after burning is primarily carbon but may contain small amounts of hydrofluoric acid. Use protective gloves and eye protection. Avoid inhalation of fumes from residue.

Protective Equipment and Precautions for Firefighters: Use positive pressure, self-contained breathing apparatus and full protective clothing.

Combustible Dust: Not applicable.

Kst (degradation index value): Not applicable.

MIE (minimum ignition energy): Not applicable.

MEC (minimum explosive concentration): Not applicable.

Particle size: Not applicable.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Use personal protection recommended in Section 8.

Methods for Containment and Clean-up: Remove combustible materials and all sources of ignition. Contain spill by diking with soda ash (sodium carbonate) or quicklime (calcium oxide). Cover spill with either chemical. Mix well. Make certain the mixture is neutral, and then collect residue and place in a drum or other suitable container. Dispose of as a hazardous waste.

Other Information: None noted.

Section 7: HANDLING AND STORAGE

Precautions for Safe Handling: Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batters. Keep batteries in non-conductive (i.e., plastic) trays.

Conditions for Safe Storage, Including Incompatibilities: Store in a cool, dry place away from sparks, flame, moistures, food and drink. Store at room temperature for best results. Keep below 60ºC but above -20ºC. Keep adequate clearance between walls and batteries.

Special Precautions: Do not damage or remove the external tube. Batteries may rupture or vent if disassembled, crushed, or exposed to high temperatures.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Component Exposure Limits:

Under normal conditions of battery use, internal components will not present a health hazard.

Occupational Exposure Limits (mg/m3)

Ingredient:	US OSHA	US ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Aluminum Foil	15/5 (a)	1	10/5(a)	5	1(e)	5/2(a,g) 10/5(a,h)
Biphenyl (BP)	1	0.2 ppm	1	1.3	0.2 ppm	1(i)/1.3(j)
Copper Foil	1	1	1	1	1	0.1(l)
Linear and Cyclic Carbonate Solvents	N/A	N/A	N/A	N/A	N/A	N/A
Graphite, powder	15/5(a)	2	15/5(a)	2	2	3.5(k)
Lithium Cobaltite (LiCoO2)	0.1(d)	0.02(d)	N/A	N/A	N/A	N/A
Lithium Hexafluorophosphate (LiPF6)	N/A	N/A	N/A	N/A	N/A	N/A
Poly (vinylidene fluoride) (PVDF)	N/A	N/A	1 ppm (c)	N/A	500ppm (c)	N/A
Steel, nickel and inert polymer	N/A	N/A	N/A	N/A	N/A	N/A

Appropriate Engineering Controls (Ventilation): Not required under normal handling conditions. Battery should not be opened. Should a cell become disassembled, the electrode should be stored in a fireproof cabinet, away from combustibles.

Personal Protective Equipment (Respiratory): None required under normal handling conditions. If respiratory irritation occurs, wear a respirator suitable for protection against acid mist.

Personal Protective Equipment (Skin & Eye): None required under normal handling conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery. Wear safety glasses with side shields if handling an open or leaking battery.

Other Protective Equipment: None required under normal handling conditions.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Cuboid (rectangular plastic box with circuit boards and nickel-plated metal canister cells inside). No odor.		
Odor:	Odorless	**Viscosity:** (Brookfield LVT #1, 30rpm)	No data
Odor Threshold:	No data	**Volatile Organic Chemicals:**	No data
pH:	No data	**Boiling Point:**	No data
Melting Point:	No data	**Solubility (H_2O):**	No data
Specific Gravity:	No data	**Density:**	No data
Octanol / H_2O Coefficient (log K_{ow}):	No data	**Evaporation Rate:**	No data
Molecular Weight:	No data	**Decomposition Temp:**	No data
Auto Ignition:	No data	**Lower Flammability Limit:**	No data
Flash Point:	No data	**Upper Flammability Limit:**	No data
Vapor Density:	No data	**Vapor Pressure:** (25°C)	No data
		Flammability Class:	No data

Section 10: STABILITY AND REACTIVITY

Stability: Stable

Conditions to Avoid: Organic components will burn if cell incinerated. Combustion of cell contents will cause evolution of hydrogen fluoride. Heat >70^{o}C or incineration. Long-term exposure to humidity.

Incompatibilities: (materials to avoid) Do not crush, puncture, incinerate, immerse in water or heat above 100ºC. Cell steel casing slowly dissolves in strong mineral acids.

Hazardous Decomposition Products: Hydrogen fluoride, phosphorous oxides, carbon monoxide, carbon dioxide, lithium hydroxide, cobalt oxides, aluminum oxide, possible fluoro-compounds, carbon soot.

Graphite: Hazardous products of decomposition can include carbon monoxide, carbon dioxide, and oxides of sulfur.

Hazardous Polymerization: Will Not Occur

Section 11: TOXICOLOGICAL INFORMATION

Routes of Entry: The rechargeable lithium-ion batteries described in this MSDS are sealed units which are not hazardous when used according to the recommendations of the manufacturer. Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

Acute Toxicity Data:

Inhalation: LiPF6: LC50 rat >20 mg/L,

Oral LD50: Biphenyl: 2400 mg/kg (rat); Copper Foil: 3.5 mg/kg (mouse); Linear and Cyclic Carbonate Solvents:~11000 mg/kg; Graphite: 440 mg/kg (mouse); LiPF6: 1702 mg/kg**.**

Symptoms of Acute Toxicity:

Inhalation: No potential for exposure under normal conditions. If seal is broken, remove from exposure and seek medical attention if exposure severe. Lithium cobaltite is a respiratory sensitizer (Resp sens 1)

Ingestion: No potential for exposure under normal conditions. If seal is broken, wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.

Skin Contact: No potential for exposure under normal conditions. If seal is broken, wash skin thoroughly with water. Remove contaminated clothing and wash before reuse. In severe cases, obtain medical attention. Lithium cobaltite is a skin sensitizer (skin sens 1).

Eye Contact: No potential for exposure under normal conditions. If seal is broken, irrigate eyes thoroughly with water for at least 15 minutes. Obtain medical attention

Synergistic Products: Not applicable as battery is a sealed unit.

Additional Information: Battery may contain up to 54 volts.

Medical Conditions Generally Aggravated by Exposure: An acute exposure will not generally aggravate any medical condition.

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section VIII. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing.

This product is intended for industrial use only and should be isolated from children and their environment.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: If used as directed and if the integrity of the battery's package and security vent are maintained, the ingredients are not expected to pose a significant risk to the environment.

Persistence / Degradability: No data.

Bioaccumulative Potential: No data.

Mobility in Soil: No data.

Other Adverse Effects: No data.

Section 13: DISPOSAL CONSIDERATIONS

Disposal: Do not incinerate or subject cells to temperatures in excess of 70^{o}C which can result in loss of seal, leakage, and/or cell explosion. Always consult and obey all international, federal, provincial/state, and local hazardous waste disposal laws. Some jurisdictions require recycling of this spent product. Recycling is encouraged.

Section 14: TRANSPORT INFORMATION

In airfreight, sealed Lithium-ion batteries are considered as “Lithium Batteries – Not Restricted”, when they can meet the requirements of PI965 of IATA Dangerous Goods Regulations (UN3480).

In sea-freight, sealed lithium-ion batteries are considered as “Lithium Batteries – Not Restricted”, when they can meet the requirements of IMDG of IMO Dangerous Goods Regulations (UN3480).

The battery does not exceed 100wh, and each cell doesn’t exceed 20wh. So this battery does not belong to class 9 with reference to IATA, 2010 Dangerous Goods Regulations, 51st edition. It complies with the necessary testing requirements under the UN Manual of Tests and Criteria, Part III, sub-section 38.3. It complies with Section II of PI965.

For more information, please refer to the newest UN Manual of Tests and Criteria, Part III, sub-section 38.3 Lithium Batteries, IATA Dangerous Goods Regulation, UN Recommendations on the Transport of Dangerous Goods Model Regulations, International Maritime Dangerous Goods (IMDG) and Agreement on Dangerous Goods by Road (ADR). It is especially important to ensure that batteries are packed in such a way to prevent short circuits.

Outer packaging shall bear the sticker to the right with emergency response phone number from Section 1 of this Safety Data Sheet:

Section 15: REGULATORY INFORMATION

EPA SARA Title III

Section 313 EPCRA Toxic Substances:

Supplier Notification: This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of (Title) III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical	CAS	% by Weight
Biphenyl (BP)	92-54-4	0.1-1
Aluminum (Al)	7429-90-5	0.1-1
Copper (Cu)	7440-50-8	0.1-1
Graphite (C)	7440-44-0	10-30
Lithium Cobaltite (LiCoO2)	12190-79-3	10-30
Lithium Hexafluorophosphate (LiPF6)	21324-40-3	1-5

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year. Note: The Section 313 supplier notification requirement does not apply to batteries that are "consumer products".

TSCA: Each ingredient chemical listed in Section III of this SDS is also listed on the TSCA Registry.

OSHA: Considered hazardous under Hazard Communication Act (29CFR1910.1200).

RCRA: Consult Federal and State waste disposal requirements.

CAA: Exide Technologies supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, Exide established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

California Proposition 65: "WARNING: This product contains lead, a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm." The following chemicals identified to exist in the finished product as distributed into commerce are known to the State of California to cause cancer, birth defects or to cause reproductive harm: Nickel: CAS #: 7440-02-0; see above for wt%.

European Inventory of Existing Commercial Chemical Substances (EINECS): All ingredients remaining in the finished product as distributed into commerce are exempt from, or included on, the European Inventory of Existing Commercial Chemical Substances.

Section 16: OTHER INFORMATION

National Fire Protection Association (NFPA)

NFPA Ratings:

Health: 1
Fire: 1
Reactivity: 1

Hazardous Material Information System (HMIS®)

HMIS Ratings:

Health: 1
Fire: 1
Reactivity: 1

(NFPA and HMIS Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe)

REVISION HISTORY

REVISION	DATE	ECN#	CHG BY	APPR BY	DESC. OF CHANGE
A	05/27/15	14957	SBL	PS	Updated MSDS to GHS/SDS Format. 48247-01 Revision A supersedes 48134 Revision C.

The information and recommendations set forth herein are presented in good faith and are believed to be correct as of the date hereof. Dentronix, Inc., however, makes no representations as to the completeness of this information and supplies it on the condition that the persons receiving same will make their own determination as to its suitability of their purposes prior to use. In no event will Dentronix, Inc. be responsible for damages of any nature whatsoever resulting from use of or reliance upon information.