

# DIA-PEN Lithium-Ion Battery

## Material Safety Data Sheet

### 1. PRODUCT AND MANUFACTURER INFORMATION

- A. Product Name Dia-Pen Lithium-Ion Battery
- B. Recommended use of the product and restrictions on its use
- |                                    |                               |
|------------------------------------|-------------------------------|
| Recommend use of the product       | Dia-Pen Battery               |
| Restrictions on use of the product | For dental professionals only |

#### C. Supplier Information

**Manufacturer :**

*DiaDent Group International*  
 16-gil Osong saengmyung 4-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do,  
 Republic of Korea 28161  
 Tel : + 82 43 266 2315

**Importer :**

*Ivoclar Vivadent Ltd.*  
 12 Omega St, Rosedale Auckland  
 New Zealand  
 Tel : + 64 9 914 9999 / Fax : + 64 9 914 9990

**Further information obtainable from :**

Regulatory Affairs  
 sds@ivoclarvivadent.com

**Emergency telephone number : 0800 764 766**  
 (National Poison Centre – 24 hours/7days)

#### D. Further Information

- |                   |                      |
|-------------------|----------------------|
| - Battery-System  | Lithium-Ion (Li-ion) |
| - Rated Capacity  | 1.2 Ah               |
| - Nominal Voltage | 3.7 V                |
| - Wh rating       | 4.44 Wh              |

### 2. HAZARDS IDENTIFICATION

- A. GHS Classification Serious Eye Damage/Eye Irritation : Category 2  
 Specific Target Organ Toxicity (Single Exposure): Category 3, Respiratory system

#### B. GHS Label elements, including precautionary statements

Pictorial symbol

- |                            |   |
|----------------------------|---|
| Signal words               | Danger(GHS07, GHS02)  |
| Hazard Statement           | H314 Causes severe skin burns and eye damage<br>H318 Causes serious eye damage  |
| Precautionary Statement(s) |   |
| Prevention                 | P235+P410 Keep cool. Protect from sunlight<br>P261 Avoid breathing dust/fume/gas/mist/vapors/spray<br>P271 Use only outdoors or in a well-ventilated area<br>P280 Wear protective gloves/protective clothing/eye protection/face protection |
| Response                   | P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing<br>P312 Call a POISON CENTER or doctor/physician if you feel unwell   |
| Storage                    | P403+P233 Store in a well-ventilated place, Keep container tightly closed<br>P405 Store locked up<br>P407 Maintain air gap between stacks/pallets   |
| Disposal                   | P413 Store bulk masses greater than 10kg / 22lbs at temperatures not exceeding 40°C / 104°F<br>P420 Store away from other materials<br>P510 Dispose of contents/container according to regulations.   |

#### C. Other hazards (according to the NFPA Rating System)

- |            |   |
|------------|---|
| Health     | 1 |
| Fire       | 1 |
| Reactivity | 0 |

3. COMPOSITION/INFORMATION ON INGREDIENT

Names of ingredients	Synonym	CAS No.	Content (%)
Lithium Cobaltite(LiCoO2)	-	12190-79-3	25~30
Graphite Powder	-	7440-44-0	10~15
Copper Foil	-	7440-50-8	15~20
Aluminum Foil	-	7429-90-5	4~6
LiPF	-	21324-40-3	3~5
Ethylene glycol carbonate	-	96-49-1	10~15
PP or PE		/	

4. FIRST AID MEASURES

A. Eyes	N/A
B. Skin	N/A
C. Inhalation	N/A
D. Ingestion	N/A
E. Notes to Physicians	N/A

5. FIRE FIGHTING MEASURES

A. Appropriate Extinguishing Media	Use extinguishing media suitable for the materials burning in fire. (Foam dry powder, carbon dioxide(CO <sub>2</sub> ), sand)
B. Specific hazards arising from chemicals	Cell is not flammable but internal organic material will burn if the cell is incinerated. Combustion products include, but are not limited to, hydrogen fluoride, carbon monoxide, and carbon dioxide. If possible, remove cell(s) from fire-fighting area. If heated above 125°C, cell(s) can explode/vent.
C. Special Protective Equipment & Precautions for fire-fighters	Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear. Stay away in a safe distance from the fire while extinguishing.

6. ACCIDENTAL RELEASE MEASURES

A. protective equipment & Emergency procedures	Give special attention to chemical materials and conditions that must be avoided.
B. Environmental precautions	Prevent the inflow of this product to waterways, drains, basements, and confined spaces.
C. Purification / Removal Method	Dispose of the product as medical waste.

7. HANDLING AND STORAGE

A. Safe handling and storage	Follow all prevention measures on the SDS/labels. Handle and store with care. Give special attention to chemical materials and conditions that must be avoided. Wear personal protective equipment while handling the product.
B. Conditions for Safe 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. Keep away from heat and sources of ignition. Keep away from water. Ensure battery terminals are protected during storage. Store in a cool, dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure Limits for Chemical Substances &	N/A
B. System Design (Proper Engineering Controls)	N/A
C. Personal protective equipments	
Respiratory protection	N/A
Eye protection	N/A
Hand protection	N/A
Skin & body protection	N/A

9. PHYSICAL/CHEMICAL PROPERTIES

A. Appearance	
Physical state	Solid
Color	Blue

B. Odor	Odorless
C. Odor Threshold Value	N/A
D. pH	N/A
E. Melting point / Freezing point	N/A
F. Initial boiling point and boiling point range	N/A
G. Flash point	N/A
H. Evaporation rate	N/A
I. Flammability (solid, gas)	N/A
J. Upper / lower limit of ignition or explosion	N/A
K. Vapor pressure	N/A
L. Solubility	Insoluble
M. Vapor density	N/A
O. Specific gravity	N/A
P. n-octanol / water partition coefficient	N/A
Q. Natural ignition temperature	N/A
R. Decomposition temperature	N/A
S. Viscosity	N/A
T. Molecular Weight	N/A

#### 10. STABILITY AND REACTIVITY

A. Chemical Stability and Possibility of Hazardous Reaction	Stable under normal conditions.
B. Conditions to avoid	Avoid heat and open flame. Do not puncture, crush or incinerate.
C. Incompatible materials	Exposure to moisture.
D. Hazardous decomposition or byproduct	None during normal operating conditions. If cells are opened, hydrogen fluoride and carbon monoxide may be released.

#### 11. TOXICOLOGICAL INFORMATION

A. Possible routes of exposure	N/A
B. Information on harmful health effects (Symptoms related to the physical, chemical and toxicological characteristics)	
Acute toxicity	
Oral	N/A
Dermal	N/A
Inhalation	N/A
Skin corrosion/Irritation	N/A
Serious Eyes damage/Irritation	N/A
Respiratory sensitization	N/A
Skin sensitization	N/A
Carcinogenicity	N/A
Industrial Safety and Health Act	N/A
Notification of the Ministry of Employment and Labor	N/A
IARC	N/A
OSHA	N/A
ACGIH	N/A
NTP	N/A
EU CLP	N/A
Germ cell mutagenicity	N/A
Reproductive Toxicity	N/A
Specific Target Organ Toxicity (Single Exposure)	N/A
Specific Target Organ Toxicity (Repeated Exposure)	N/A
Aspiration Toxicity	N/A

## 12. ECOLOGICAL INFORMATION

A. Ecotoxicity	
Fish	N/A
Shellfish	N/A
Birds	N/A
B. Persistence & Degradability	
Persistence	N/A
Degradability	N/A
C. Bioaccumulative potential	
Accumulation	N/A
Biodegradability	N/A
D. Mobility in soil	N/A
E. Other adverse effects	N/A

## 13. DISPOSAL CONSIDERATION

- |                             |   |
|-----------------------------|---|
| A. Product Disposal         | If stated in the Wastes Control Act, dispose of the contents and container accordingly. |
| B. Precautions for Disposal | Dispose of the content according to the related regulations.                            |

## 14. TRANSPORT INFORMATION

The rechargeable Lithium-Ion battery pack as stated in Appendix are made in compliance to the requirements stated in the latest edition of the *IATA Dangerous Goods Regulations Packing Instruction 965 section II* such that they can be transported as a NOT RESTRICTED (non-hazardous/non-dangerous) goods. However, if those lithium-ion battery packs are pack with or contained in an equipment, then it is the responsibility of the shipper to ensure that the consignment are packed in compliance to the latest edition of the *IATA Dangerous Goods Regulations section II* of either Packing Instruction 966 or 967 in order for that consignment to be declared as NOT RESTRICTED (non-hazardous/non-Dangerous).

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions (2011-2012 Edition),
- The International Air Transport Association (IATA) Dangerous Goods Regulations (52nd Edition, 2011)
- The International Maritime Dangerous Goods (IMDG) Code (2010 Edition),
- US Hazardous Materials Regulations 49 CFR (Code of Federal Regulations) Sections 173-185 Lithium batteries and cells,
- The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries, 5th revised edition
- UN No. 3480

## 15. REGULATORY INFORMATION

- |  |     |
|--|-----|
| A. Regulations according to the Industrial Safety and Health Act   | N/A |
| B. Regulations according to the Toxic Chemicals Control Act  | N/A |
| C. Regulations according to the Safety Control of Dangerous Substances Act   | N/A |
| D. Regulations according to the Wastes Control Act   | N/A |
| E. Other regulations according to domestic and foreign laws  |     |
| - Follow the regulations of the KFDA (Korea Food & Drug Administration).   |     |
| - Follow the regulations of the Directive 93/42/EEC and 2007/42/EC.  |     |
| F. Safety, health and environmental regulations/legislation specific for the substance or mixture.   |     |
| - Classified as Hazardous according to the criteria of the National Occupational Health and Safety Commission (NOHSC) approved criteria for the classifying hazardous substances [NOHSC : 1008] 3rd edition. |     |
| - Standard for the Uniform Scheduling of Medicines and Poisons.  |     |
| - Carcinogen classification under WHS Regulation 2011, Schedule 10.  |     |
| - Notification status in accordance with section 3 and current national legislation.   |     |
| - HSNO Approval: HSR001271, HSR002948, HSR001474, HSR004476  |     |
| - EPA NZ Classes of hazardous properties:  |     |
| Classification 4.2C Spontaneously Combustible Substances: self-heating substances: low hazard  |     |
| Classification 6.1B (All) Substances that are acutely toxic - Fatal  |     |
| Classification 6.1B (O)  |     |
| Classification 6.1B (I)  |     |
| Classification 6.4A Substances that are irritating to the eye  |     |
| Classification 6.5B Substances that are contact sensitizers  |     |
| Classification 6.6A Substances that are known or presumed human mutagens   |     |
| Classification 6.9B (All) Substances that are harmful to human target organs or systems  |     |

- Classification 6.9B (O)
- Classification 6.9B (I)
- Classification 9.1A (All) Substances that are very ecotoxic in the aquatic environment
- Classification 9.1A (F)
- Classification 9.1A (C)
- Classification 9.1A (A)
- Classification 9.1A (Oth)
- Classification 9.2D Substances that are slightly harmful in the soil environment
- Classification 9.3A Substances that are very ecotoxic to terrestrial vertebrate
- Classification 4.2A Spontaneously Combustible Substances: pyrophoric substances: high hazard
- Classification 8.3A Corrosive to ocular tissue

16. OTHER INFORMATION

A. Source of Data	N/A
B. Date of Creation	2015-06-15
C. Revision No. & Revision Date	
Revision Number	2
Date of Last Revision	2020-01-02


  
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○ The information and recommendations are taken from sources (raw material SDS(s) and manufacturer's knowledge) believed to be accurate and reliable. It is intended to describe the product according to various safety requirements; however, the manufacturer makes no warranty with respect to the accuracy and completeness of the information or the suitability of the recommendation and assumes no liability to any user thereof.