DISCOVER ENERGY SYSTEMS

Safety Data Sheet (SDS)

Revision date: June 21st, 2024

SECTION 1: Identification of the substance/mixture and the company/undertaking

1.1 Product Identifier

Lithium-ion cells and battery packs, $LiFePO_4$

Product brand: Discover

Product Model	Marketing Name
12-48-6650	12-48-6650
42-48-6650	42-48-6650
12-36-6700	12-36-6700
14-24-2800	14-24-2800
44-24-2800	44-24-2800
15-24-1000	15-24-1000
15-36-1000	15-36-1000
900-0041	14-48-3000 / 44-48-3000
900-0042	14-36-3000
900-0043	14-24-3000
900-0044	14-12-3000
590-0080	n/a
590-0086	n/a
590-0090	n/a
590-0097	n/a
IFR 26650P	n/a
IFR 32650	n/a

Product Model	Marketing Name
900-0046	DLB-G24-12V
900-0047	DLB-G24-24V
900-0048	DLB-G24-36V
900-0049	DLB-GC12-12V
900-0050	DLB-GC12-24V
900-0051	DLP-GC2-12V
900-0052	DLP-GC2-24V
900-0053	DLP-GC2-36V
900-0054	DLP-GC2-48V
900-0062	48-48-5120
900-0067	48-48-5120-H
GSP34135214F	n/a
TB-027070180-FE-30Ah-X	n/a
CB27173204EA	n/a

Other means of identification:

Discover Energy Advanced Energy System (AES)
Discover AES BLUE Premium Series Lithium Battery
Discover AES PROFESSIONAL Series Lithium Battery
Discover AES RACKMOUNT Lithium Battery
Discover Energy lithium / lithium ion
Discover Energy cell / module / battery / pack / system
Battery module / battery / pack / system

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use: Electrochemical energy storage - industrial use
Uses advised against: Not applicable

1.3 Details of the supplier of the safety data sheet

Company: Discover Energy Systems Corp.
Address: #7 Crestwood Place, Richmond, BC V6V 2E9 Canada
Telephone: +1 (778) 776 3288 **Website:** discoverlithium.com

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1.4 Emergency telephone number

Emergency phone: 1-800-535-5053 (Account# 84774)

1.5 Authorized Agent for Australia

Name: DPA Solar
Address: 4/273 Williamstown Road, Port Melbourne, VIC 3207
Telephone: +61 (3) 9696 1119
Web: www.dpasolar.com.au
Email: sales@dpasolar.com.au

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP]

This product is considered as a manufactured article, and not classified as hazardous according to EC 1272/2008.

Classification according to Directive 67/548/EEC

This product is not classified as hazardous according to Directive 67/548/EEC.

Classification according to Directive 1999/45/EC

This product is not classified as hazardous according to Directive 1999/45/EC.

2.2 Label elements

Symbols / Pictograms	No pictogram is used
Signal word	No signal word is used
Hazard statements	Not classified
Precautionary statements	Not classified

2.3 Other hazards

Primary route(s) to exposure

This product is safe with normal use. Exposure to the ingredients contained within and/or their combustion products could be harmful. Risk of exposure occurs only if the battery is mechanically, thermally, or electrically abused and the enclosure is ruptured. If this occurs, exposure to electrolyte can occur by inhalation, ingestion, eye contact, and skin contact. The battery should not be opened or burned.

Inhalation

Inhalation of material from a sealed battery/cell is not an expected route of exposure. Vapors or mists from a ruptured battery/cell may cause respiratory irritation.

Ingestion

Swallowing of material from a sealed battery/cell is not an expected route of exposure. Swallowing the contents of a ruptured cell may cause serious chemical burns of the mouth, esophagus, and gastrointestinal tract.

Skin
Contact between the skin and the battery will not cause harm. Contact with the contents of a ruptured cell/battery can cause severe irritation or burns to the skin.

Eye
Contact between the eye and the battery will not cause harm. Contact with the contents of a ruptured cell/battery can cause severe irritation or burns to the eye.

SECTION 3: Composition/information on ingredients

3.1 Substances
The product is a manufactured article. Exposure to interior of article is not expected with normal use.

3.2 Mixture
The product is a manufactured article. Exposure to hazardous ingredients is not expected with normal use.

Composition for Li-ion Cell (Model: IFR32650) used inside product.

Chemical Name	EC No	CAS No.	Weight (%)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Lithium Iron Phosphate	---	15365-14-7	27.04	Not classified
Graphite (C)	231-955-3	7782-42-5	12.78	Carc. 1A, H350 Carc. 2, H351 STOT RE 1, H372 Comb. Dust
Aluminium (Al)	231-072-3	7429-90-5	6.44	Flam. Sol. 1 (H228) Water-react. 2 (H261)
Copper (Cu)	231-159-6	7440-50-8	9.22	Acute Tox. 4 (Oral), H302 Comb. Dust
Iron	231-096-4	7439-89-6	23.52	Comb. Dust
Nickel (Ni)	231-111-4	7440-02-0	1.18	Skin Sens. 1; Carc. 2; STOT RE 1; Aquatic Chronic 3; H317, H351, H372, H412
Polyethylene $(C_2H_4)n$)	---	9002-88-4	4.37	Comb. Dust
Lithium, Hexafluorphosphate ($LiPF_6$)	244-334-7	21324-40-3	2.01	Acute Tox. 3; Skin Corr. 1A; STOT RE 1; H301, H314, H372
Organic Solvent	---	---	13.44	Not classified

Composition for Li-ion Cell (Model: IFR26650P) used inside product.

Chemical Name	EC No	CAS No.	Weight (%)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Lithium Iron Phosphate	---	15365-14-7	27.04	Not classified

Graphite (C)	231-955-3	7782-42-5	12.78	Carc. 1A, H350 Carc. 2, H351 STOT RE 1, H372 Comb. Dust
Aluminium (Al)	231-072-3	7429-90-5	6.44	Flam. Sol. 1 (H228) Water-react. 2 (H261)
Copper (Cu)	231-159-6	7440-50-8	9.22	Acute Tox. 4 (Oral), H302 Comb. Dust
Iron	231-096-4	7439-89-6	23.52	Comb. Dust
Polyethylene $(C_2H_4)n)$	---	9002-88-4	4.37	Comb. Dust
Organic Solvent	---	---	13.44	Not classified

Composition for Li-ion Cell (Model: TB-027070180-FE-30Ah-X) used inside product.

Chemical Name	EC No	CAS No.	Weight (%)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Lithium Iron Phosphate	---	15365-14-7	28-32	Not classified
Graphite (C)	231-955-3	7782-42-5	13-17	Carc. 1A, H350 Carc. 2, H351 STOT RE 1, H372 Comb. Dust
Aluminum (Al)	231-072-3	7429-90-5	15-19	Flam. Sol. 1 (H228) Water-react. 2 (H261)
Copper (Cu)	231-159-6	7440-50-8	16-20	Acute Tox. 4 (Oral), H302 Comb. Dust
Lithium	---	7439-92-1	1.6-2	---
Organic Solvent	---	---	15-18	Not classified

Composition for Li-ion Cell (Model: GSP34135214F) used inside product.

Chemical Name	EC No	CAS No.	Weight (%)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Lithium Iron Phosphate	---	15365-14-7	23	Not classified
Graphite (C)	231-955-3	7782-42-5	11.5	Carc. 1A, H350 Carc. 2, H351 STOT RE 1, H372 Comb. Dust
Aluminium (Al)	231-072-3	7429-90-5	5.5	Flam. Sol. 1 (H228) Water-react. 2 (H261)
Copper (Cu)	231-159-6	7440-50-8	6.7	Acute Tox. 4 (Oral), H302 Comb. Dust
Iron	---	---	---	---
Polyethylene $(C_2H_4)n)$	---	9002-88-4	2	Comb. Dust
Organic Solvent	---	---	13.2	Not classified

Composition for Li-ion Cell (Model: CB27173204EA) used inside product.

Chemical Name	EC No	CAS No.	Weight (%)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Lithium Iron Phosphate	---	15365-14-7	30.0	Not classified
Aluminum (Al) Foil	231-072-3	7429-90-5	6.9	
Aluminum (Al) Alloy	231-072-3	7429-90-5	5.5	
Copper (Cu) Foil	231-159-6	7440-50-8	16.1	Acute Tox. 4 (Oral), H302 Comb. Dust
Carbon (C)	---	7782-42-5	13.5	---
Separator $(C_3H_6)_n$	---	9003-07-7	3.9	---
Electrolyte ($LiPF_6$/EC + DEC)	---	---	24.1	---

Weight of metallic lithium per cell: 0g. There is no metallic lithium in the lithium polymer battery.

These chemicals are contained in a sealed can, inside a sealed container. The risk of exposure only occurs if the battery is mechanically, thermally, or electrically abused.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

In all cases of doubt, or when symptoms persist, seek medical attention. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

Eyes

Not an expected route of exposure. Following eye contact, cautiously rinse the affected eye with clean lukewarm water for at least 30 minutes. Remove contact lenses, if present, and easy to do. If eye irritation persists, seek medical attention.

Skin

Not expected to present as skin hazard under anticipated conditions of normal use. Following skin contact, immediately remove contaminated clothing and wash the skin with copious amounts of soap and water. If irritation or pain persists, seek medical attention.

Ingestion

Following ingestion, rinse out the mouth with water. DO NOT INDUCE VOMITING. Seek immediate medical attention.

Inhalation

Not an expected route of exposure. If inhaled electrolyte, remove the victim to fresh air and remove the source of contamination from the area. Keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Acute effects

Direct contact of internal electrolyte gel with the eyes may cause severe burns or blindness.
Direct contact of internal electrolyte gel with the skin may cause skin irritation or damaging burns.
Vapor or mist can irritate the eyes, mucous membranes, and respiratory tract. Exposure can cause nausea, dizziness, and headaches.

Chronic/delayed effects

Overexposure to the internal electrolyte gel may cause reproductive disorder(s) based on tests with laboratory animals. Target organs affected could be kidneys, central nervous system, eyes, and male reproductive system. Overexposure may cause cancer. Target organs are the brain, intestine, mammary gland, haematopoietic system, and kidneys.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, dry chemical powder, carbon dioxide (CO2), and foam are most effective to extinguish a battery fire.

For small fires use only sand, dry chemical powder, CO2, or regular foam. Continuously apply media until the fire is extinguished.

For large fires, use copious quantities of water spray. Continuously apply media until the fire is extinguished. Large fires should only be extinguished by trained firefighters.

Unsuitable extinguishing media

Do not use small quantities of water. If water spray is used, it must be continually applied until the fire is extinguished.

5.2 Special hazards arising from the substance or mixture

Battery may vent when subjected to excessive heat-exposing, fire or over voltage condition. Risk of explosion by fire is anticipated if batteries are disposed of in fire. Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

The interaction of water or water vapour with electrolyte may result in the generation of hydrogen and hydrogen fluoride (HF) gas.

Contact with battery electrolyte may be irritating to the skin, eyes, and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation.

Lithium-ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures when damaged or abused.

Burning cells may ignite other cells or objects within close proximity.

5.3 Advice for firefighters

Large lithium-ion battery fires should only be extinguished by properly equipped firefighters with training specific to lithium-ion battery fires.

Wear NIOSH/MSHA/EN469-approved self-contained breathing apparatus (SCBA) and protective clothing when fighting chemical fires.

SECTION 6: Accidental release measures

The material contained within the batteries is only released if the battery is mechanically, thermally, or electrically abused and the enclosure is ruptured.

6.1 Personal precautions, protective equipment, and emergency procedures

Evacuate personnel to safe areas
Ensure adequate ventilation, especially in confined areas
Remove all sources of ignition
Avoid contact with skin, eyes, and inhalation of vapours
User personal protection is recommended in Section 8.3

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so
Do not allow electrolyte to flow into any sewer, on the ground, or into any body of water

6.3 Methods and material for containment and cleaning up

Add neutralizer/absorbent, e.g. sand or vermiculite, to the spill area. Sweep or shovel spilled material and absorbent and place in an approved container. Dispose of any non-recyclable materials in accordance with local, state, provincial, or federal regulations.

6.4 Reference to other sections

See Section 7 for more information
See Section 8 for more information
See Section 13 for more information

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Do not open, disassemble, crush, puncture, or burn products. If the battery case is broken, avoid contact with internal components. Do not handle near heat, sparks, or open flames.
Remove metallic accessories, rings, and other jewelry when handling live batteries.
Protect containers from physical damage to avoid leaks and spills.
Place cardboard between layers of stacked batteries to avoid damage and short circuits,
Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire.

7.2 Conditions for safe storage, including any incompatibilities.

Insulate positive and negative terminals to avoid short circuits. Avoid mechanical or electrical abuse.
Store the product in a cool, dry, and ventilated area, which is subjected to little temperature changes. Storage at high temperatures, or exposure to direct sunlight for long periods, should be avoided. The recommended storage temperature is -20°C–45°C, not to exceed 60°C. Elevated temperatures can result in shortened battery life.
Keep out of reach of children.
Store in accordance with local regulations.

7.3 Specific end use(s)

Apart from the uses mentioned in SECTION 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Occupational exposure limits

Exposure to hazardous substances are not expected when the product is used for its intended purpose.
See Section 8.2 for ingredients with limit values that require monitoring at the workplace if a battery case has been compromised or damaged.

Biological limit values

Exposure to hazardous substances are not expected when the product is used for its intended purpose.

Exposure limits at the intended use

Exposures to hazardous substances are not expected when the product is used for its intended purpose.

Derived No Effect Level (DNEL) / Predicted No Effect Concentration (PNEC) values.
Not applicable.

Risk management measures according to used control banding approach.

Not applicable.

8.2 Ingredients with limit values

Chemical Name / Region	Graphite (CAS #: 7782-42-5)	Copper (CAS #: 7440-50-8)	Aluminium (CAS #: 7429-90-5)	Lithium, Hexa-fluorphosphate ($LiPF_6$) (CAS #: 21324-40-3)
Australia	3 mg/m3	1 mg/m3 0.2 mg/m3	10 mg/m3 5mg/m3	2.5 mg/m3
Austria	STEL: 10 mg/m3 TWA: 5 mg/m3	STEL: 4mg/m3 STEL: 0.4 mg/m3 TWA: 1 mg/m3 TWA: 0.1 mg/m3	STEL 20 mg/m3 TWA: 10 mg/m3	---
Belgium	---	---	---	---
Denmark	TWA: 2.5 mg/m3	TWA: 1.0 mg/m3 TWA: 0.1 mg/m3	TWA: 5 mg/m3 TWA: 2 mg/m3	TWA: 2.5 mg/m3
European Union	---	---	---	---

France	---	TWA: 0.2 mg/m3 TWA: 1 mg/m3 STEL: 2 mg/m3	TWA: 10 mg/m3 TWA: 5 mg/m3	---
Finland	---	TWA: 1 mg/m3 TWA: 0.1 mg/m3	TWA: 1.5 mg/m3	---
Germany	---	TWA: 0.01 mg/m3 Ceiling/peak: 0.02 mg/m3 Ceiling/peak: 0.2 mg/m3	TWA: 4 mg/m3 TWA: 1.5 mg/m3	TWA: 1 mg/m3 Skin
Italy	---	---	---	---
Latvia	---	TWA: 0.5 mg/m3 STEL: 1 mg/m3	TWA: 2 mg/m3	---
Netherlands	---	TWA: 0.1 mg/m3	---	---
Norway	---	TWA: 0.1 mg/m3 TWA: 1 mg/m3 STEL: 0.1 mg/m3 STEL: 1 mg/m3	TWA: 5 mg/m3 STEL: 5 mg/m3	---
Poland	---	---	TWA: 2.5 mg/m3 TWA: 1.2 mg/m3	---
Portugal	---	---	TWA: 10 mg/m3 TWA: 5 mg/m3	---
Spain	---	---	TWA: 10 mg/m3 TWA: 5 mg/m3	---
Switzerland	---	---	TWA: 3 mg/m3	---
United Kingdom	---	---	STEL: 30 mg/m3 STEL: 12 mg/m3 TWA: 10 mg/m3 TWA: 4 mg/m3	---
Other:				
ACGIH TLV	TWA: 2.0 mg/m3 Respirable fraction all forms except graphite fibers	TWA: 0.2 mg/m3 fume TWA: 1 mg/m3 Cu dust and mist	TWA: 1mg/m3 respirable fraction	TWA: 2.5 mg/m3 F
Chemical Name / Region	**Graphite (CAS #: 7782-42-5)**	**Copper (CAS #: 7440-50-8)**	**Aluminium (CAS #: 7429-90-5)**	**Lithium, Hexa-fluorphosphate ($LiPF_6$) (CAS #: 21324-40-3)**
OSHA PEL	---	---	TWA: 15 mg/m3 total dust TWA: 5 mg/m3 respirable fraction (vacated) TWA: 15 mg/m3 total dust (vacated) TWA: 5 mg/m3 respirable fraction (vacated) TWA: 5 mg/m3 Al	---
NIOSH IDLH	---	IDLH: 100 mg/m3 dust, fume and mist IDLH: 100 mg/m3 Cu dust and mist TWA: 1 mg/m3 dust and mist TWA: 0.1 mg/m3 fume TWA: 1 mg/m3 Cu dust and mist	TWA: 10 mg/m3 total dust TWA: 5 mg/m3 respirable dust TWA: 5 mg/m3 Al	---

8.3 Exposure controls

Appropriate engineering controls

Not necessary under normal conditions. Broken or leaking batteries should be handled in accordance with good industrial hygiene and safety practices. Wash hands before work breaks and at the end of workday. Do not eat, drink or smoke while handling leaking batteries.

Personal protective equipment

Eye/face protection: Not necessary under conditions of normal use. In case of battery rupture or leakage, wear safety goggles or side shields when handling.

Skin protection: Not necessary under conditions of normal use. In case of battery rupture or leakage, wear rubber apron and nitrile, neoprene, or natural rubber gloves when handling an open or leaking battery. Inspect gloves prior to use. Change disposable gloves within 30 minutes of obvious contamination by electrolyte. Remove dirty gloves by appropriate technique. Do not touch the outer surface of glove.

Respiratory protection: Not necessary under conditions of normal use. In case of battery venting or rupture, inside an enclosed space, use NIOSH approved or equivalent self-contained breathing apparatus.

8.4 Environmental exposure controls

Comply with the handling and storage guidelines in Section 7. Do not allow any spilled electrolyte from damaged product in any sewer, on the ground, or into any body of water.

SECTION 9: Physical and Chemical Properties

9.1 Information on the basic physical and chemical properties

Appearance	Solid. Battery system, battery module, or cell.
Color	Grey
Odor	Odourless
Odor threshold	Not applicable
pH	Not applicable
Melting point / freezing point	Not applicable
Initial boiling point / boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability	Not applicable
Flammability limit in air	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Density	Not applicable
Specific gravity	Not available
Solubility in water	Insoluble
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable
Explosive properties	Not applicable
Oxidizing properties	Not applicable

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9.2 Other information

Electrical specifications

Product Model	Nominal Voltage (V)	Electric Capacity (Ah)	Electric Energy (Wh)	Marketing Name
12-48-6650	51.2	130	6656	12-48-6650
42-48-6650	51.2	130	6656	42-48-6650
14-24-2800	25.6	110	2816	14-24-2800
44-24-2800	25.6	110	2816	44-24-2800
15-24-1000	25.6	40	1024	15-24-1000
12-36-6700	38.4	175	6720	12-36-6700
15-36-1000	38.4	25	960	15-36-1000
IFR32650	3.2	5	16	n/a
900-0054	51.2	30	1536	DLP-GC2-48V
900-0053	38.4	30	1152	DLP-GC2-36V
900-0052	25.6	60	1536	DLP-GC2-24V
900-0051	12.8	120	1536	DLP-GC2-12V
900-0050	25.6	100	2560	DLB-GC12-24V
900-0049	12.8	200	2560	DLB-GC12-12V
900-0048	38.4	30	1152	DLB-G24-36V
900-0047	25.6	45	1152	DLB-G24-24V
900-0046	12.8	100	1280	DLB-G24-12V
900-0044	12.8	228	2918	14-12-3000
900-0043	25.6	114	2918	14-24-3000
900-0042	38.4	76	2918	14-36-3000
900-0041	51.2	57	2918	14-48-3000 / 44-48-3000
590-0080	51.2	57	2918	n/a
590-0086	38.4	76	2918	n/a
590-0090	25.6	114	2918	n/a
590-0097	12.8	228	2918	n/a
900-0062	51.2	100	5120	48-48-5120
900-0067	51.2	100	5120	48-48-5120-H
IFR26650P	3.2	3.8	12	n/a
GSP34135214F	3.2	100	320	n/a
TB-027070180-FE-30Ah-X	3.2	30	96	n/a
CB27173204EA	3.2	100	320	n/a

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage and handling conditions (see Section 7, Handling and storage)

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

A shorted lithium battery can cause thermal and chemical burns upon contact with the skin.

If a battery is severely heated by a surrounding fire, acrid or harmful fumes may be emitted.

If leaked, do not allow contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons.

10.4 Conditions to avoid

Avoid mechanical or electrical abuse, including external short circuit of battery, deformation by crush, direct sunlight, high humidity, temperatures exceeding 60°C, puncture, sources of ignition, or installation with incorrect polarity.

10.5 Incompatible materials

Strong bases, combustible organic materials, reducing agents, strong oxidizers, and sea water or other electrically conductive liquids.

10.6 Hazardous decomposition products

A compromised battery may emit irritating or toxic fumes and gases, including metallic oxide, hydrogen fluoride, carbon monoxide, and carbon monoxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute Toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Copper (CAS #: 7440-50-8)	> 2500 mg/kg bw (rat)	> 2000 mg/kg bw (rat)	= 1.03 mg/L/4 h (rat)
Aluminium (CAS #: 7429-90-5)	> 15900 mg/kg bw(rat)	---	> 0.888 mg/L/4 h (rat)
Ferrum (CAS # 7439-89-6)	> 7500 mg/kg bw (rat)	---	---

Skin corrosion/irritation	Non-irritating to the skin under normal conditions
Serious eye damage/irritation	No eye irritation under normal conditions
Respiratory or skin sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	Risk of exposure occurs only if the battery enclosure is compromised.
Reproductive toxicity	Risk of exposure occurs only if the battery enclosure is compromised.
STOT-single exposure	No information available.
STOT-repeated exposure	No information available.
Aspiration hazard	No information available.

SECTION 12: Ecological information

When properly used or disposed of, the batteries do not present environmental hazards.

12.1 Toxicity

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
Copper (CAS #: 7440-50-8)	0.031 – 0.054 mg/L/96h Pseudokirchnerilla subcapitata static 0.0426 – 0.0535 mg/L/72h Pseudokirchneriella subcapitata static	1.25: 96h Lepomis macrochirus mg/L LC50 static 0.3: 96h Cyprinus carpio mg/L LC50 semi-static 0.8: 96h Cyprinus carpio mg/L LG50 Static 0.112: 96 h Poecilia reticulate mg/L LC50 Flow-through 0.0068 – 0.0156: 96 h Pimephales promelas mg/L LC50 0.3: 96h Pimephales promelas mg/L LC50 static 0.2: 96h Pimephales promelas mg/L LC50 flow-through 0.052: 96h Orcorhynchus mykiss mg/L LC50 flow-through	---
Aluminium (CAS #: 7429-90-5)	---	> 50 mg/L/96h	---

12.2 Persistence and degradability

Not readily biodegradable.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects

Batteries and cells released in the environment will slowly degrade and may release toxic or harmful substances. Batteries should be disposed of or recycled according to local regulations.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recycling is encouraged. Do not throw out a used battery or cell in the landfill. Electrolyte should not be dumped into any sewers, on the ground, or into any body of water. Recycle through a qualified recycling company.

Canada	Dispose of in accordance with local, state and federal laws and regulations.
Europe	Dispose of in accordance with relevant EC Directives and national, regional, and local environmental control regulations. For disposal within the EC, the appropriate code according to the European List of Wastes (LoW) should be used.
USA	Dispose of in accordance with local, state, and federal laws and regulations.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics is the responsibility of the end user. Store material for disposal as indicated in Section 7.

SECTION 14: Transport information

All Discover AES battery models (and their internal cells) have independently passed testing required by Section 38.3 of the UN Manual of Tests and Criteria.

14.1 UN number

Air transport (ICAO/IATA)	UN3480 (only for 15-24-1000, 15-36-1000, IFR32650, IFR26650P, 900-0046, 900-0047, 900-0048, 900-0049, 900-0050, 900-0051, 900-0052, 900-0053, 900-0054, 900-0062, 900-0067)
Sea transport (IMDG)	UN3480
Inland waterway transport (ADN)	UN3480
Land transport (ADR/RID)	UN3480

14.2 Proper shipping name

Air transport (ICAO/IATA)	Lithium Ion Batteries (only for 15-24-1000, 15-36-1000, IFR32650, IFR26650P, 900-0046, 900-0047, 900-0048, 900-0049, 900-0050, 900-0051, 900-0052, 900-0053, 900-0054, 900-0062, 900-0067)
Sea transport (IMDG)	Lithium Ion Batteries
Inland waterway transport (ADN)	Lithium Ion Batteries
Land transport (ADR/RID)	Lithium Ion Batteries

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14.3 Hazard Class

Air transport (ICAO/IATA)	9
Sea transport (IMDG)	9
Inland waterway transport (ADN)	9
Land transport (ADR/RID)	9

14.4 Packing Group

Air transport (ICAO/IATA)	None
Sea transport (IMDG)	None
Inland waterway transport (ADN)	None
Land transport (ADR/RID)	None

14.5 Environmental Hazards

Dangerous goods

14.6 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Worldwide air transportation: The goods are packaged according to Section 1A of PACKING INSTRUCTION 965 of the 2016 IATA Dangerous Goods. Lithium-ion batteries may be air transported on CARGO AIRCRAFT ONLY and are forbidden in passenger aircraft.

Worldwide sea transportation: The goods are packaged according to the special provision 188 of IMDG. IMO-IMDG Code [P903]

14.7 Labeling

Use Class 9 Miscellaneous Dangerous Goods and UN Identification labels for transportation of lithium-ion batteries which are assigned Class 9. Refer to relevant transportation documents. Lithium and lithium-ion cells and batteries are regulated in the USA in accordance with Part 49 Regulations of the Code of Federal Regulations, (49 CFR Sections 105-180) of the U.S. Hazardous Materials Regulations.

Lithium-ion batteries, under UN3480, PI 965, Section 1A, must be declared as CARGO AIRCRAFT ONLY (CAO) if shipped by air.

SECTION 15: Regulatory information

15.1 Safety, health, and environmental regulations/legislation specific for the substance or mixture

Canada

This is not a controlled product under WHMIS. This product meets the definition of a “manufactured article” and is not subject to the regulations of the Hazardous Products Act.

All ingredients in the product are listed, as required, on the DSL/NDSL.

This product does not contain any NPRI Substances.

Europe

Under normal use, this product is not classified as hazardous according to:
Regulation (EC) No 1272/2008
Directive 67/548/EEC
Directive 1999/45/EC

Risk phrases	None
Safety phrases	S2: Keep out of the reach of children.

USA

This product is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA hazard communication standard requirement.

TSCA Status	All ingredients in the product are listed on the TSCA inventory.
SARA Title III	
Sec. 302/304	None
Sec. 311/312	None
Sec. 313	None
CERCLA RQ	None
California Prop 65	This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

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SECTION 16: Other information

This material Safety Data Sheet (SDS) complies with the requirements of Regulation (EC) No. 1907/2006.

16.1 Revision summary

August 26, 2016	New document
November 1, 2016	24-hour emergency contact number updated
November 10, 2017	New models 15-36-1000, 12-36-6700 added; updated Discover logo
January 23, 2019	Updated Packing Group, Labelling
December 19, 2019	New models 14-3k series batteries and 26650 cells added
July 28, 2020	Clarification of Product Names and Models.
December 15, 2021	New models added (900-0046, 900-0047, 900-0048, 900-0049, 900-0050, 900-0051, 900-0052, 900-0053, 900-0054, 900-0065, 900-0066); Sections 9.2 and 14 reflect the additions of these models.
October 5, 2022	Updated Section 1.1 and Sections 9.2 to reflect the marketing name 46-12-1540 on an existing battery model.
August 3, 2023	New models added (900-0062, 900-0067). Sections 9.2 and 14 reflect the additions of these models. Removed 900-0065 and 900-0066 models. Sections 9.2 and 14 reflect changes. Corporate entity update. Product name update.
August 21, 2023	Update to authorized agents for Australia.

16.2 Terms & Definitions

Key or legend to abbreviations and acronyms used in the SDS:

AICS	Australian Inventory of Chemical Substances
Ceiling	Maximum limit value
DSL/NDSL	Canadian Domestic Substances List / Non-Domestic Substances List
ENCS	Japan Existing and New Chemical Substances
EINECS/ELINCS	European Inventory of Existing Chemical Substances / European List of Notified
IATA	International Air Transport Association
IECSC	China Inventory of Existing Chemical Substances
IMDG	International Maritime Dangerous Goods
KECL	Korean Existing and Evaluated Chemical Substances
NPRI	National Pollutant Release Inventory
STEL	Short Term Exposure Limit
TSCA	United States Toxic Substances Control Act Section 8(b) Inventory
STOT RE	Specific Target Organ Toxicity – repeated exposure
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

Full text of H-Statements referred to under Section 3

H228	Flammable solid
H261	Contact with water releases flammable gases
H301	Toxic if swallowed
H314	Causes severe skin burns and eye damage
H317	May cause an allergic reaction
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure if inhaled
H412	Harmful to aquatic life with long lasting effects

16.3 Manufacturer disclaimer

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