

# SAFETY DATA SHEET

**DLG POWER BATTERY CONFIDENTIAL PROPRIETARY**

Revision Number : 1

## 1. Identification

**Product:** Rechargeable Lithium-ion Cylindrical Battery

**Manufacturer:** Wahl Clipper Corp.

**Address:** 2900 N. Locust St. Sterling, IL 61081

**Tel:** 1-815-625-6525

**Web site:** [www.wahl.com](http://www.wahl.com)

## 2. HAZARDS IDENTIFICATION

### **Classification :**

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

**No specific health hazards for normal use.**

### **Routes of Entry**

There is no hazard when the measures for handling and storage are followed.

### **Health Hazards**

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when a battery vents. Leaking material exposure to skin, eyes may cause irritation. Inhalation of fumes may cause respiratory irritation.

### **Sign/Symptoms of Exposure**

Leaking can cause thermal and chemical burns upon contact with the skin.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Composition	Chemical Formula	CAS No.	Weight(%)
Cobalt lithium manganese nickel oxide	$\text{LiNi}_x\text{Co}_y\text{Mn}_{1-x-y}\text{O}_2$	182442-95-1	30-45w/w
Graphite	C	7782-42-5	15-25 w/w
Lithium hexafluorophosphate	$\text{LiPF}_6$	21324-40-3	1-3 w/w
Poly (vinylidene fluoride) (PVDF)	$(\text{C}_2\text{H}_2\text{F}_2)_n$	24937-79-9	0.1 -4 w/w
Aluminum foil	Al	7429-90-5	2-8 w/w
Copper foil	Cu	7440-50-8	5 -10 w/w
Carbon black and others	C	1333-86-4	0.5-3w/w
Styrene, 1,3-butadiene polymer	$(\text{C}_{12}\text{H}_{14})_n$	9003-55-8	0.5-5 w/w
Carboxymethylcellulose sodium	$\text{R(N)OCH}_2\text{COONA}$	9004-32-4	0.5-2 w/w

### 4. FIRST AID MEASURES

#### General Information

The following first aid measures are required only in case of exposure to interior battery components after damage of the external battery casing. Undamaged, closed, cells do not represent a danger to the health.

#### Eyes

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

#### Skin

Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.

#### Inhalation

Remove from exposure and move to fresh air immediately. Use oxygen if available.

#### Ingestion

Do not induce vomiting. Call a physician immediately.

### 5. FIRE-FIGHTING MEASURES

**Flash Point:** N/A.

**Auto-Ignition Temperature:** N/A.

**Suitable extinguishing Media**

Cold water and dry powder in large amount are applicable. Use metal fire extinction power or dry sand if only few cells are involved.

### **Special hazards arising form the chemical**

May form hydrofluoric acid if electrolyte comes into contact with water. In case of fire, the formation of the following flue gases can not be excluded: Hydrogen fluoride(HF), Carbon monoxide and carbon dioxide.

### **Protective equipment and precautions for firefighters**

Wear self-contained breathing apparatus and protective suit.

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions**

Use personal protective clothing.

Avoid contact with skin, eyes and clothing.

Avoid breathing fume and gas.

### **Environmental precautions**

Do not discharge into the drains/surface waters/groundwater.

Methods for cleaning up/taking up.

Take up mechanically and send for disposal.

## **7. HANDLING AND STORAGE**

### **Handling**

Advice on safe handling

Avoid short circuiting the cell. Avoid mechanical damage of the cell. Do not open or disassemble.Keep away from open flames, hot surfaces and sources of ignition.

### **Storage**

Requirements for storage rooms and vessels

Storage at room temperature(approx.20°C) at approx.20~60% of the nominal capacity(OCV approx.3.6~3.9V/cell).

Keep in closed original container.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Additional advice on limit values**

During normal charging and discharging there is no release of product.

**Occupational exposure controls**

No specific precaution necessary.

**Protective and hygiene measures**

When using do not eat, drink or smoke. Wash hands before breaks and after work.

**Respiratory Protection**

No specific precautions necessary.

**Hand protection**

No specific precautions necessary.

**Eye protection**

No specific precautions necessary.

**Skin protection**

No specific precautions necessary.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Ingredient	Risk Code	Safety Description	Hazard	Exposure Controls/Personal Protection
Cobalt lithium manganese nickel oxide	R22;R43;R50/53	S24;S37;S60;S61	Xn(Harmful) N(Dangerous for the environment)	0.1mg/m <sup>3</sup> (TWA)
Poly (vinylidene fluoride) (PVDF)		S22;S24/25		
Aluminum foil	R17,R15,R36/38,R10,R67,R65,R62,R51/53,R48/20	S7/8, S43,S26,S62,S61,S36/37,S33,S29,S16,S9	F(Highly Flammable) Xn(Harmful) Xi(Irritant)	Airborne Exposure Limits: -OSHA Permissible Exposure Limits(PELs): 15mg/m <sup>3</sup> (TWA) total dust and 5mg/m <sup>3</sup> (TWA)
Copper foil	R11, R36, R37,R38	S5,S26,S16,S61,S36/37	F(Highly Flammable) N(Dangerous for Environment) Xn(harmful) Xi(Irritant)	Cooper Dust and Mists, as Cu: -OSHA Permissible Exposure Limit(PEL)-1mg/m <sup>3</sup> (TWA) Cooper Fume: -OSHA Permissible Exposure Limit(PEL)- 0.1mg/m <sup>3</sup> (TWA)
Carbon black and others	S22;S24/25		F(Highly Flammable)	Airborne Exposure Limits: -OSHA Permissible Exposure Limits(PELs):total particulate 15mg/m <sup>3</sup>

**Appearance**

Form: Solid

Color: Various

Odor: Odorless

Important health,safety and environmental information

Test method

pHValue	n.a.
Flash point	n.a.
Lower explosion limits	n.a.
Vapour pressure	n.a.
Density	n.a.
Water solubility	Insoluble
Ignition temperature	n.a.

**10. STABILITY AND REACTIVITY****Stability**

Stable.

**Conditions to Avoid**

Heating over 90°C , fire, mechanical abuse and electrical abuse.

**Incompatible materials**

No materials to be especially mentioned.

**Hazardous Decomposition Products**

In case of open cells, there is the possibility of hydrofluoric acid and carbon monoxide release.

**Possibility of Hazardous Reactions**

Will not occur

**11. TOXICOLOGICAL INFORMATION**

Empirical data on effects on humans

If appropriately handled and if in accordance with the general hygienic rules, no damages to health have become known.

## 12. ECOLOGICAL INFORMATION

### Further information

Ecological injuries are not known or expected under normal use. Do not flush into surface water or sanitary sewer system.

## 13. DISPOSAL CONSIDERATIONS

### Appropriate Method of Disposal of Substance or Preparation

Dispose of the batteries in accordance with approved local, state, and federal requirements. Consult state environmental agency.

### Contaminated packaging

Disposal in accordance with local regulations.

## 14. TRANSPORT INFORMATION

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

- The International Civil Aviation Organization (ICAO) Technical Instructions, Packing Instruction 965, Section II (2013-2014 Edition)
- The International Air Transport Association (IATA) Dangerous Goods Regulations, Packing Instruction 965, Section II (57th Edition, 2016)
- US Hazardous Materials Regulations 49 CFR (Code of Federal Regulations) Sections 173-185 Lithium batteries and cells
- The article is not restricted to IMO IMDG Code according to special provision 188.
- UN No. 3480

## 15. REGULATORY INFORMATION

### U.S. Regulations

#### National Inventory TSCA

All of the components are listed on the TSCA inventory.

#### SARA

To the best of our knowledge this product contains no toxic chemicals subject to the supplier notification requirements of Section 313 of the Superfund Amendments and Reauthorization Act (SARA/EPCRA) and the requirements of 40 CFR Part 372.

## 16. OTHER INFORMATION

### Hazardous Materials Information Label(HMIS)

Health:0

Flammability:0

Physical Hazard: 0

### NFPA Hazard Ratings

Health:0

Flammability:0

Reactivity:0

Unique Hazard:

Full text of R-phrases

### Further Information

Data of section 4 to 8, as well as 10 to 12, do not necessarily refer to the use and the regular handling of the product (in this sense consult package leaflet and expert information) , but to release of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge. This data does no constitute a guarantee for the characteristics of

the product(s) as defined by the legal warranty regulations.”(n.a. = not applicable; n.d. = not determined)”

The data for the hazardous ingredients were taken respectively form the last version of the sub-contractor’s safety data sheet.

R10	Flammable
R20/22	Harmful by inhalation and if swallowed
R22	Harmful if swallowed
R34	Cause burn
R40	Limited evidence of a carcinogenic effect
R43	May cause sensitization by skin contact
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation
R49	May case cancer by inhalation
R50	Very toxic to aquatic organisms
R53	May cause long-term adverse effects in the aquatic environment