MATERIAL SAFETY DATA SHEET

PRODUCT NAME: LITHIUM-ION BATTERY

1 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY /UNDERTAKING

Identification of the substance/preparation

Product name: Lithium-Ion Battery

Use of the substance/Preparation: Battery

Company/Undertaking identification

Supplier:

Name : Winston Battery Ltd.

Address : No.3 Industrial Zone,Lisonglang Village,

Gongming Town, Bao'an Dist, Shenzhen, P.R.C

Phone: + 86 755 86026789 Fax: +

Emergency contact:

CHEMTREC Phone: 1-800-424-9300

2 – COMPOSITION/INFORMATION ON INGREDIENTS

BATTERY MODEL: WB-LYP/WB-LP			
Ingredient	**Weight %**	**CAS No.**	**Notes**
Rare earth Y	40.5%	7440-65-5	----
Li2CO3	16%	554-13-2	----
Mn	4.4%	7439-96-5	----
Ca	0.3%	7440-70-2	----
Graphite	5%	7782-42-5	----
Na	1.5%	7440-23-5	----
C	3.1%	7440-44-0	----
Fe	3.4%	7439-89-6	----
PE	3.3%	9002-88-4	----
Cu	10%	7440-50-8	----
Al	6%	7429-90-5	----
K	1.7%	7440-09-7	----
F	3.3%	7782-41-4	----
Sr	1.5%	7440-24-6	----

3 – HAZARDS IDENTIFICATION :

3.1 Physical :

The Lithium-Ion rechargeable batteries described in this Material Safety Data Sheet are sealed units which

are not hazardous when used according to the recommendations of the manufacturer.

Under normal conditions of use, the solid electrode materials and liquid electrolyte they contain are non- reactive provided the battery integrity is maintained and seals remain intact. There is Risk of fire only in cases of abuse (mechanical, thermal, electrical), which leads to the activation of the safety valve and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/fire may follow, depending upon the circumstances.
In case of excessive internal pressure and/or temperature Winston batteries are fitted with a safety vent for protection and/or rupture of the cell case.

3.2 Chemical

Classification of dangerous substances contained into the product as per directive 67/548/EEC

Substance		Melting point	Boiling point	Classification			
CAS NO	Chemical Symbol			Exposure limit	Indication of danger	Special risk (1)	Safety advices (2)
12190-79-3	LiFeYPO4	> 1000 ° C	N/A				
EC: 96-49-1 DMC: 616-38-6 DEC: 105-58-8 EA: 141-78-6	Organic solvents (DC-DMC DEC-EA)	EC: 38 ° C DMC: 4 ° C DEC:-43 ° C EA: -84 ° C	EC: 243 ° C DMC: 90 ° C DEC: 127 ° C EA: 77 ° C	None established OSHA	Flammable		
21324-40-3	LiPF 6	N/A (decomposes at 160 ° C)	N/A	None established OSHA	R 22 R43	S2 S22 S24 S26 S36 S37 S43 S45	
					R21 R22 R41 R42/43	S2 S24 S26 S36 S37 S45	
					R14 R21 R22 R41 R43	S2 S8 S22 S24 S26 S36 S37 S45	

3.2.1 – Nature of Special risks:

R14 Reacts with water.

R 21 Harmful in contact with skin.

R22 Harmful if swallowed.

R41 Risk of serious damage to the eye.

R42/43 May cause sensitization by inhalation and skin contact.

R43 May cause sensitization by skin contact.

3.2.2 – Safety advices:

S 2 Keep out of reach from children.

S 8 Keep away from moisture.

S 22 Do not breathe dust.

S 24 Avoid contact with skin.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.

S36 Wear suitable gloves.

S 45 In case of incident, seek medical attention

4 - FIRST AID MEASURES

In case of battery rupture,fume or fire, evacuate personnel from contaminated area and provide maximum ventilation to clean out fumes/gases. Meantime, spray the battery with water or put the smoking battery into basin at once.

In all cases, seek medical attention.

Eye contact: Flush with plenty of water (eyelids held open) for at least 15 minutes.

Skin contact : Remove all contaminated clothing and flush affected areas with plenty of Water and soap for at least 15 minutes Do not apply greases or ointments.

Ingestion: Dilute by giving plenty of water and get immediate medical attention. Assure that the victim does not aspirate vomited material by use of positional drainage.Assure that mucus does not obstruct the airway. Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air and ventilate he contaminated area. Give oxygen or artificial respiration if needed.

5 – FIRE-FIGHTING MEASURES

Fire and fume hazard: Except LFP series batteries, LCP and LMP batteries can leak and/or spout vaporized or decomposed and combustible electrolyte fumes in case of exposure above 150 ° C resulting from inappropriate use, abuse, or from the environment. Possible formation of hydrogen fluoride (HF) and phosphorous oxides during fire. LiPF 6 salt contained in the electrolyte releases hydrogen fluoride (HF) in r.

Extinguishing media: spray the battery with v oking battery into basin at once.

Can be used : …… Type D extinguishe ical or Foam extinguishers

Special hazards : Following cell overheating due to external source or due to improper use, electrolyte leakage or battery container rupture may occur and release inner component/material in the environment.

Eye contact : The electrolyte solution contained in the battery is irritant to ocular tissues.

Skin contact: The electrolyte solution contained in the battery causes skin irritation.

Ingestion: The ingestion of electrolyte solution causes tissue damage to throat and gastro/respiratory tract.

Inhalation : Contents of a leaking or ruptures battery can cause respiratory tract, mucus, membrane irritation and edema.

Special protection: Use self-contained breathing apparatus to avoid breathing irritant fumes.

Wear protective clothing and equipment to prevent body contact with electrolyte solution.

6 - ACCIDENTAL RELEASE MEASURES

The material contained within the batteries would only be expelled under abusive conditions.

Soak under water or spray with copious amounts of water , place in approved container (after cooling if necessary) and dispose in accordance with local regulations.

7 - HANDLING AND STORAGE

The batteries should not be opened, destroyed nor incinerate since they may leak or rupture and release in the environment the ingredients they contain. .

Handling: Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods. Do not directly heat or solder. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batteries. Keep

batteries in non-conductive (i.e. plastic) trays.

Storage: Store in a cool (preferably below 30 ° C) and ventilated area away from moisture, sources of heat, open flames, food and drink. Keep adequate clearance between walls and batteries. Temperature above 100 ° C may result in battery leakage and rupture. Since short circuit can cause burn, leakage and battery container rupture hazard, keep batteries in original packaging until use and do not jumble them.

Other: Follow manufacturer recommendations regarding maximum recommended currents and operating temperature range.

Applying pressure or deforming the battery may lead to the rupture of battery container and disassembly followed by eye, skin and throat irritation.

8 - FIRE CONTROLS/PERSONAL PROTECTION

Respiratory protection: Not necessary under normal use. In case of battery rupture, use self- contained full-face respiratory equipment.

Hand protection: Not necessary under normal use. Use Viton rubber gloves if handling a leaking battery.

Eye protection: Not necessary under normal use. We : glasses with side shields if handling a leaking or ruptured battery.

Skin protection: Not necessary under normal use. Use rubber apron and protective working in case of handling of a ruptured battery.

9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance : (Physical shape and color as supplied)Yellow Plastic Prismatic cases with ribs, hermetically sealed and fitted with a metallic terminals/connections.

9.2 Temperature range :

	Continuous	Occasional
In storage during	+ 30 ° C max	-45/+ 85 ° C
discharge during	• 30/+ 80 ° C	-45/+85 ° C
during charge	0/+ 75 ° C	0/+75 ° C

9.3 Specific energy: (Note: Wh = Normal voltage x Rated Ah) kg = Average battery weight)

9.4 Specific pulse power: 600w-1200w/kg Varies depending upon size

9.5 Mechanical resistance : As defined in relevant IEC standard

10 - STABILITY AND REACTIVITY

Conditions to avoid : Heat above 85 ° C or incinerate. Deform, mutilate, crush, pierce, disassemble. Short circuit. Prolonged exposure to humid conditions.

Materials to avoid : N/A

Hazardous decomposition products: Corrosive/Irritant Hydrogen fluoride (HF) is produced in case of reaction of lithium hexafluorophosphate (LiPF 6) with water. Combustible vapors and formation of Hydrogen fluoride (HF) and phosphorous oxides during fire.

11 - TOXOLOGICAL INFORMATION

Lithium-Ion batteries made by Winston Battery Ltd. do not contain toxic materials.

12 - ECOLOGICAL INFORMATION

When properly used or disposed, Lithium-Ion batteries made by Winston Battery Ltd. can be recycled and do not present environmental hazard during their life time.

13 - DISPOSAL CONSIDERATIONS

Dispose in accordance with applicable regulations, which vary from country to country.

Lithium-Ion batteries should have their terminals insulated and be preferably wrapped in individual plastic bags prior to disposal.

13.1 Incineration :

Incineration should never be performed by battery 

ly be trained professionals in authorized facilities with proper gas and fumes treatment.

13.2 Recycling : Send to authorized recycling facilities.

14 - TRANSPORT INFORMATION

UN-No. 3480

ARD/RID			
Class 9	Packing Group II	ADR/RID-Labels	9
Proper shipping name	Lithium-ion batteries, UN3480		
IMO			
Class	Packing Group II	IMO-Labels	9
Proper shipping name	Lithium-ion batteries, UN3480		
IATA-DGR			
Class	Packing Group II	ICAO-Labels	9
Proper shipping name	Lithium-ion batteries, UN3480		

Winston Battery Ltd. declares that UN Manual of Tests and Criteria, Part III, sub-section 38.3 is met.

In airfreight, small Lithium-ion batteries (cells<20WH or packs>100WH) are considered as “Expected Lithium-ion Batteries”, when they meet the requirements of Ed. 52 of IATA regulations (UN3480) and ICAO Packing Instruction 965 section II, specifying less than 10kg gross per package. Caption shipment can move as normal cargo under current IATA

In other cases (mainly for large cells >20WH or packs > 100WH), they are considered as Class 9 (See Packing Instruction 965 section I for airfreight).

In Seafreight, sealed Lithium-ion batteries are considered as “Lithium-ion Batteries-Not Restricted”, when

they meet the requirements of IMDG of IMO Dangerous Goods Regulations (UN3480).

15 - REGULATION INFORMATION

The transport of rechargeable lithium-ion batteries is regulated by various bodies: IATA, IMO, ADR/RID.

16 – OTHER INFORMATION/DISCLAIMER

This information has been compiled from sources considered to be dependable and is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein.

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