

# D2-TECH CO.,LTD

12F,NO.408,RUEYGUANG RD.,NEIHU DISTRICT,TAIPEI 114,TAIWAN R.O.C  
TEL:02-2659-5881 FAX:02-2659-4960

## Material Safety Data Sheet

### 1.Product & Company Identification:

Product	Li-ion Polymer Rechargeable Battery		
Manufacturer:	D2-TECH CO.,LTD.		
Models:	LP-53048		
Chemical system:	GRAPHITE/Lithium Cobalt Oxide		
Nominal Capacity:	700MAH		
Nominal Voltage:	3.7V		
Address:	12F,NO.408,RUEYGUANG RD.,NEIHU DISTRICT,TAIPEI 114,TAIWAN R.O.C		
Telephone:	02-2659-5881	Fax:	02-2659-4960

### 2.COMPOSITION/INFORMATION ON INGREDIENTS:

IMPORTANT NOTE:THE BATTERY SHOULD NOT BE OPENED OR BURNED.EXPOSURE TO THE INGREDIENTS CONTAINED WITHIN OR THEIR COMBUSTION PRODUCTS COULD BE HARMFUL.

MATERIAL OR INGREDIENT	PEL(OSHA)	TLV(ACGIH)	% WT.
GRAPHITE (CAS#7782-52-5)	5MG/M3 TWA(RESPIRABLE FRACTION) 15MG/M3 TWA(TOTAL DUST)	2MG/M3 TWA(RESPIRALBE FRACTION)	15~35
LITHIUM COBALT OXIDE (CAS#12190-79-3)	0.1MG/M3 TWA(AS CO)	0.02MG/M3 TWA(AS CO)	20~50
LITHIUM HEXAFLUOROPHOSHPATE (CAS#21321-40-3)	NONE ESTABLISHED	NONE ESTABLISHED	0~5
ACETYLENE BLACK (CAS#1333-86-4)	3.5MG/M3 TWA(AS CARBON BLACK)	3.5MG/M3 TWA(AS CARBON BLACK)	0~10
DIETHYL CARBONATE (CAS#105-58-8)	NONE ESTABLISHED	NONE ESTABLISHED	0~30
DIMETHYL CARBONATE (CAS#616-38-6)	NONE ESTABLISHED	NONE ESTABLISHED	0~30
ETHYL METHYL CARBONATE (CAS#623-53-0)	NONE ESTABLISHED	NONE ESTABLISHED	0~30
PROPYLENE CARBONATE (CAS#108-32-7)	NONE ESTABLISHED	NONE ESTABLISHED	0~30
ETHYLENE CARBONATE (CAS#96-49-1)	NONE ESTABLISHED	NONE ESTABLISHED	0~30

### 3.HAZARDOUS IDENTIFICATION:

CHEMICAL NOTURE:WHITE COLOR SOLID

CAS-NO/EINECS NO.:N/A

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INCI CTFA-DESCRIPTION:LITHIUMION POLYMER RECHARGEABLE BATTERY SERIES.

INQESTION:NO EFFECT UNDER ROUTINE HANDLING AND USE

INHALATION:NO EFFECT UNDER ROUTINE HANDLING AND USE

SKIN CONTACT:NO EFFECT UNDER ROUTINE HANDLING AND USE.

EYE CONTACT:NO EFFECT UNDER ROUTINE HANDLING AND USE.

SKIN ABSORPTION:NO EFFECT UNDER ROUTINE HANDLING AND USE.

REPORTED AS CARCINOQEN:NOT APPLICABLE.

#### **4.FIRST AIDMEASURES:**

UNDER NORMAL CONDITIONS OF USE,THE BATTERY IS HERMETICALLY SEALED.

#### **INQESTION:**

SWALLOWING A BATTERY CAN BE HARMFUL.

CONTENTS OF AN OPEN BATTERY CAN CAUSE SERIOUS CHEMICAL BURNS OF MOUTH,ESOPHAGUS,AND GASTROINTESTINAL TRACT. IF BATTERY OR OPEN BATTERY IS INGESTED,DO NOT INDUCE VOMITING OR GIVE FOOD OR DRINK.SEEK MEDICAL ATTENTION IMMEDIATELY.

#### **INHALATION.:**

CONTENTS OF AN OPEN BATTERY CAN CAUSE RESPIRATORY IRRITATON.INHALATION OF VAPORS MAY CAUSE IRRITATION OF THE UPPER RESPIRATORY TRACT AND LUNGS.PROVIDE FRESH AIR AND SEEK MEDICAL ATTENTION.

#### **SKIN ABSORPTION:**

ETHYLENE CARBONATE,DIETHYL CARBONATE AND DIMETHYL CARBONATE MAY BE ABSORBED THROUGH THE SKIN CAUSING LOCALIZED INFLAMMATION.

#### **SKIN CONTACT:**

CONTENTS OF AN OPEN BATTERY CAN CAUSE SKIN IRRITATION AND/OR CHEMICAL BURNS.REMOVE CONTAMINATED CLOTHING AND WASH SKIN WITH SOAP AND WATER.IF A CHEMICAL BURN OCCURS OF IR IRRITATION PERSISTS,SEEK NEDICAL ATTENTION.

#### **EYE CONTACT:**

CONTENTS OF AN OPEN BATTERY CAN CAUSE SEVERE IRRITATION AND CHEMICAL BURNS.IMMEDIATELY FLUSH EYES THOROUGHLY WITH WATER FOR AT LESAST 15MINUTES,LIFTING UPPER AND LOWER LIDS,UNTIL NO EVIDENCE OF THE CHEMICAL REMAINS.SEEK MEDICAL ATTENTION.

#### **NOTE:**

ACETYLENE BLACK AND COBALT COMPOUNDS ARE LSTED AS POSSIBLE CARCINOGENS BY THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER(IARC).

#### **5.FIRE FIGHTING MEASURES**

IF FIRE OR EXLOSION OCCURS WHEN BATTERIES ARE ON CHARGE,SHUT OFF POWER TO CHARGER.

IN CASE OF FIRE WHERE LITHIUMION BATTERIES ARE PRESENT, FLOOD THE AREA WITH WATER.IF ANY BATTERIESE ARE BURNING,WATER MAY NOT ESTINGUISH THEM,BUT WILL COOL

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THE ADJACENT BATTERIES AND CONTROL THE SPREAD OF FIRE.CO<sub>2</sub>,DRY CHEMICAL,AND FOAM EXTINGUISHERS ARE PREFERRED FOR SMALL FIRES,BUT ALSO MAY NOT EXTINGUISH BURNING LITHIUMION BATTERIES.BURNING BATTERIES WILL BURN THEMSELVES OUT.VIRTUALLY ALL FIRES INVOLVING LIHIUMION BATTERIES CAN BE CONTROLLED WITH WATER.WHEN WATER IS USED,HOWEVER,HYDROGEN GAS MAY BE EVOLVED WHICH CAN FORM AN EXPLOSIVE MISTURE WITH AIR.LITH-X(POWDERED GRAPHITE)OR COPPER POWDER FIRE EXTINGUISHERS,SAND,DRY GROUND DOLOMITE OR SODA ASH MAY ALSO BE USED.THESE MATERIALS ACT AS SMOTHERING AGENTS.

FIRE FIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS.BURNING LITHIUMION BATTERIES CAN PRODUCE TOXIC FUMES INCLUDING HF,OSIDES OF CARBON,ALUMINUM,LITHIUM,COPPPER,AND COBALT.VOLATILE PHOSPHORUS PENT FLUORIDE MAY FORM AT A TEMPERATURE ABOVE 230<sup>0</sup> FAHRENHEIT.

#### **6.ACCIDENTAL RELEASE MEASURES**

**ON HAND:**PLACE MATERIAL INTO SUITABLE CONTAINERS AND CALL LOCAL FIRE/POLICE DEPARTMENT.

**IN WATER:**IF POSSIBLE.REMOVE FROM WATER AND CALL LOCAL FIRE/POLICE DEPARTMENT.

#### **7.HANDLING & STORAGE**

**HANDING:**DO NOT EXPOSE THE BATTERY TO ESCCESSIVE PHYSICAL SHOCK OR VIBRATION. SHORT-CIRCUITING SHOULD BE AVOIDED;HOWEVER,ACCIDENTAL SHORT-CIRCUITNG FOR A FEW SECONDS WILL NOT SERIOUSLY AFFECT THE BATTERY.PROLONGED SHORT CIRCUITS WILL CAUSE THE BATTERY TO RAPIDLY LOSE ENERGY,COULD GENERATE ENOUGH HEAT TO BURN SKIN. SOURCES OF SHORT CIRCUITS INCLUDE JUMBLED BATTERIES IN BULK CONTAINERS,COINS,METAL JEWELRY,METAL COVERED TABLES,OR METAL BELTS USED FOR ASSEMBLY OF BATTERIES IN DEVICES. TO MINIMIZE RISK OF SHORT-CIRCUITING,THE PROTECTIVE CASE SUPPLIED WITH THE BATTERY SHOULD BE USED TO COVER THE TERMINALS WHEN TRANSPORTING OR STORING THE BATTERY.DO NOTSIASSEMBLE OR DEFORM THE BATTERY. SHOULD AN INDIVIDUAL CELL WITHIN ABATTERY BECOME RUPTURED,DO NOT ALLOW CONTACT WITH WATER.

**STORAGE:**THE LITHIUMION BATTERY SHOULD BE BETWEEN 25% AND 75% OF FULL CHARGE WHEN STORED FOR A LONG PERIOD OF TIME. STORED IN A COOL,DRY,AND WELL VENTILATED AREA. ELEVATED TEMPERATURES CAN RESULT IN LOSS OF BATTERY PREFORMANCE,LEAKAGE,OR RUST. DO NOT EXPOSE THE BATTERY TO OPEN FLAMES.

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

##### **ENGINEERING CONTROL:**

KEEP AWAY FROM HEAT AND OPEN FLAME.STORED IN A COOL DRY PLACE.

##### **PERSONAL PROTECTION:**

RESPIRATORY PROTECTION:NOT NECESSARY UNDER NORMAL CONDITIONS.

##### **EYE/FACE PROTECTION:**

NOT NECESSARY UNDER NORMAL CODITIONS.WEAR SAFETY GLASSES WITH SIDE SHIELDS

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IF HANDLING AN OPEN OR LEAKING BATTERY.

#### GLOVES:

NOT NECESSARY UNDER NORMAL CONDITIONS.USE NEOPRENE OR NATURAL RUBBER GLOVES IF HANDLING AN OPEN OR LEAKING BATTERY.

#### FOOT PROTECTION:

STEEL TOED SHOES RECOMMENDED OFR LARGE CONTAINER HANDLING.

#### 9.PHYSICAL/CHEMICAL PROPERTIES

PHYSICAL STATE	SOLID	SOLUBILITY IN WATER	NOT APPLICABLE
COLOR	WHITE	VAPOR PRESSURE	NOT APPLICABLE
ODOR	NO	EXPLOSION LIMIT	NOT APPLICABLE
FLASH POINT	NOT APPLICABLE	AUTO FLAMMABILITY	NOT APPLICABLE
SOLUBILITY IN ETHANOL SOLUBLE	NOT APPLICABLE	MELTING POINT	NOT APPLICABLE
BOILING POINT	NOT APPLICABLE	FREEZING POINT	NOT APPLICABLE
ENERGY	0.01~60WH (NOTE:WH=NOMINAL VOLTAGE*RATED AH,MARKED ON EACH BATTERY)		

#### 10.STABILITY&REACTIVITY

**STABILITY:**GOOD STABILITY AT STANDARD TEMPERATURE.

**REACTIVITY:**NONE.

AVOID CONTACT WITH WATER AND ACIDS. HAZARDOUS DECOMPOSITION PRODUCTS:IF AL PACKAGE FOIL OF BATTERY IS DAMAGED,THE BATTERY SHOULD AVOID TO CONTACT STRONG OXIDIZER,ACIDS AND HIGH TEMPERATURE,AND THE ELECTORLYTE WILL BE FORMED HF.

#### 11.TOXICOLOGICAL INFORMATION

THIS PRODUCT DOES NOT ELICIT TOXICOLOGICAL PROPERTIES DURING ROUTINE HANDLING AND USE.

#### 12.ECOLOGICAL INFORMATION

IF THE BATTERY IS SCRAPPED,IT SHOULD BE SELECTED AND DISPOSED BY PROFESSIONAL COMPANY.

#### 13.DISPOSAL CONSIDERATIONS

DO NOT DISPOSE OF BATTERY INTO ENVIRONMENT OR SEVERAGE.IT SHOULD BE RECYCLED AND DISPOSED BASING ON YOUR LOCAL LEGISLATION AND REGULATIONS.

#### 14.TRANSPORT INFORMATION

THE WATT-HOUR FATING OF THE BATTERY MODELS LISTED IS NOT MORE THAN 100WH.THE PRODUCT IS NOT CLASSIFIED AS DANGEROUS UNDER THE CURRENT EDITION OF THE IATA DANGEROUS GOODS REGULATIONS.THEPRODUCT IS SAFE FOR AIR TRANSPORTATION AND NOT REGULATED BY ITAT DGR AND MEETS ALL REQUIREMENTS UNDER UN MANUAL OF TESTS AND CRITERIA PART III ,SUBSECTION 38.3.

EACH PACKAGE IS LABELLED AND WELL PASSED THE 1.2M DROP TEST.THE MANUFACTURE DATA IS LABELLED ON EACH BATTERY.

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NO	ITEMS	FESULT	REMARKS
1	ALTITUDE SIMULATION	PASS	TEST 1-5 MUST BE CONDUCTED IN SEQUENCE ON THE SAME CELL OF BATTERY
2	THERMAL TEST	PASS	
3	VIBRATION	PASS	
4	SHOCK	PASS	
5	EXTERNAL SHORT CIRCUIT	PASS	
6	IMPACT	PASS	
7	OVERCHARGE	PASS	ONLY BATTERY DO NEED THIS TEST
8	FORCED DISCHARGE	PASS	

#### 15.REGULATORY INFORMATION

SEE ACGIH ESPOSURE LIMITS INFORMATION AS NOTED IN SECTION3.

US:THIS MSDS MEETS/ESCEEDS OSHA REQUIREMENTS.

INTERNATIONAL:THIS MSDS COMFORMS TO EUROPEAN UNION(UN),THE INTERNATIONAL STANDARDS ORGANIZATION(ISO) AND THE INTERNATIONAL LABOR ORGANIZATION(ILO)AND AS DOCUMENTAL IN ANSI(AMERICAN NATIONAL STANDARDS INSTITUTE)STANDARD Z400.1-1993.