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Zhuhai CosMX Battery Co.,Ltd.
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COSMX LITHIUM ION POLYMER BATTERY SAFETY DATA SHEET

Ref No:ARC 20210101-030

PRODUCT NAME: Rechargeable Lithium Polymer single cell Battery, PACK

CHEMICAL SYSTEM: Lithium Ion Designed for Recharge: yes

Root-Deliverable	HP RMN NO	HP P/N	CosMX P/N	CosMX P/N	Cell applied
SP04061XL	HSTNN-OB1B	L28538-AC1	B00C436485D0001	B00C436485D0001	436485G-Q
RR03048XL	HSTNN-OB1A	851477-AC1	B00C606072D0001	B00C606072D0001	606072G-QA
RE03045XL	HSTNN-OB1C	L32407-AC1	B00C515974D0001	B00C515974D0001	515974G-Q
TF03041XL	HSTNN-OB1E	920046-AC1	B00C515974C0001	B00C515974C0001	515974HV
SA04055XL	HSTNN-OB1F	L43248-AC1	B00C515974C0004	B00C515974C0004	515974HV
SA04055XL	HSTNN-OB1G	L43248-AC2	B00C515974C0005	B00C515974C0005	515974HV-Q
HT03041XL	HSTNN-OB1H	L11421-AC1	B00C515974C0003	B00C515974C0003	515974HV-Q
HT03041XL	HSTNN-OB1H	L11421-AC2	B00C515974C00017	B00C515974C0017	515974HV-Q
PG03052XL	HSTNN-OB1I	L48430-AC1	B00C606072D0003	B00C606072D0003	606072G-QA
PG03052XL	HSTNN-OB1I	L48430-AC2	B00C606072D0007	B00C606072D0007	606072G-QA
RR04060XL	HSTNN-OB1M	L60213-AC1	B00C506373D0001	B00C506373D0001	506373G
MD02040XL	HSTNN-OB1N	L63999-AC1	B00C368598D0001	B00C368598D0001	368598G
RF03045XL	HSTNN-OB1Q	L83685-AC1	B00C545974D0002	B00C545974D0002	545974G-H
SD03052XL	HSTNN-OB1R	L84357-AC1	B00C606072D0006	B00C606072D0006	606072G-QA
BN03051XL	HSTNN-OB1O	L76965-AC1	B00C506479D0001	B00C506479D0001	506479G-Q
SA04055XL	HSTNN-OB1F	L43248-AC3	B00C515974C0015	B00C515974C0015	515974HV
SA04055XL	HSTNN-OB1G	L43248-AC4	B00C515974C0014	B00C515974C0014	515974HV-Q
RE03045XL	HSTNN-OB1C	L32407-AC2	B00C515974D0004	B00C515974D0004	515974G-Q
HT03045XL	HSTNN-OB1L	L56025-AC1	B00C515974D0002	B00C515974D0002	515974G-Q
PV03043XL	HSTNN-OB1P	L83388-AC1	B00C446872D0001	B00C446872D0001	446872G
AL08094XL	HSTNN-OB1S	L86155-AC1	B00C515961G0002	B00C515961G0002	515961E

PC03043XL	HSTNN-OB1W	M24421-AC1	B00C446872D0003	B00C446872D0003	446872G
RH03045XL	HSTNN-OB1T	M01524-AC1	B00C545974D0003	B00C545974D0003	545974G-H
PP03043XL	HSTNN-OB1P	M01118-AC1	B00C446872D0002	B00C446872D0002	446872G
HT03041XL	HSTNN-OB1H	L11421-AC3	B00C515974C0019	B00C515974C0019	515974HV-Q
HW03041XL	HSTNN-OB2A	L96887-AC1	B00C515974C0021	B00C515974C0021	515974HV-Q
DS02032XL	HSTNN-OB1Z	M37888-AC1	B00C3169B6D0001	B00C3169B6D0001	3169B6G
WK04070XL	HSTNN-OB2C	M38822-AC1	B00C606072D0008	B00C606072D0008	606072G
WK06083XL	HSTNN-OB2I	M41640-AC1	B00C685257G0001	B00C685257G0001	685257E
SI03058XL	HSTNN-OB1V	M12329-AC1	B00C407792D0001	B00C407792D0001	407792G
MA04046XL	HSTNN-OB1U	M07389-AC1	B00C2662C0D0001	B00C2662C0D0001	CA266C20
GG02047XL	HSTNN-OB1X	M25863-AC1	B00C4473A9D0001	B00C4473A9D0001	4473A9G
GH02047XL	HSTNN-OB1Y	L75253-AC1	B00C4473A9D0002	B00C4473A9D0002	4473A9G

SECTION 1-MANUFACTURE INFORMATION

Manufactured By:

Zhuhai CosMX Battery Co., LTD

No.209, Zhufeng Road, Jing'an Town, Doumen District, Zhuhai City, Guangdong, P.R.China

Zip Code:519180

Telephone Number for Information

Tel:86-756-6199908
Fax:86-756-6199910

Prepared Date:23/12/2020

SECTION 2-MANUFACTURE INFORMATION

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# 7782-42-5)	5mg/m3 TWA(respirable fraction) 15mg/m3 TWA(tatal dust)	2mg/m3 TWA(respirable fraction)	7~25
Lithium Cobalt Oxide (CAS# 12190-79-3)	0.1mg/m3 TWA(as Co)	0.02mg/m3 TWA (as Co)	15~40
Hexafluoropropylene-vinylidene fluoride Copolymer (CAS#9011-17-0)	None established	None established	3~15

Lithium Hexafluorophosphate (CAS#21324-40-3)	None established	None established	0~5
Acetylene Black (CAS#1333-86-4)	3.5mg/m3 TWA (as carbonate black)	3.5mg/m3 TWA (as carbonate black)	0-2
Diethyl Carbonate (CAS#105-58-8)	None established	None established	0-15
Dimethyl Carbonate (CAS#616-38-6)	None established	None established	0-15
Ethyl Methyl Carbonate (CAS#623-53-0)	None established	None established	0-15
Propylene Carbonate (CAS#108-32-7)	None established	None established	0-15
Ethylene Carbonate (CAS#96-49-1)	None established	None established	0-15

SECTION 3-Independent Certification of Lithium-Ion cell Transportation Model Regulation

There are being tested in accordance with the UN Model Regulation,Manual of Test and Criteria,Part III,subsection 38.3.

T1	Altitude Simulation	No mass loss, leakage, venting, disassembly, rupture, and fire, OCV should not be less than 90% before testing	Passed	
T2	Thermal Test	No mass loss, leakage, venting, disassembly, rupture, and fire, OCV should not be less than 90% before testing	Passed	
T3	Vibration	No mass loss, leakage, venting, disassembly, rupture, and fire, OCV should not be less than 90% before testing	Passed	
T4	Shock	No mass loss, leakage, venting, disassembly, rupture, and fire, OCV should not be less than 90% before testing	Passed	
T5	External Short circuit	External temperature should not exceed 170 degree, No disassembly, rupture, and fire within six hours of this test	Passed	
T6	Impact	External temperature should not exceed 170 degree, No disassembly and fire within six hours of this test	Passed	
T7	Overcharge	No disassembly and fire within seven days of this test	Passed	Battery only
T8	Forced Discharge	No disassembly and fire within seven days of this test	Passed	Cell only

The lithium battery should pass the UN38.3 test, if the battery can not pass the testing, it can not transport, should redesign. If the battery through the test, for the lithium battery only,follow the UN3480 and the packing requirements for PI965, for the lithium battery which installed in equipment, follow the UN3481 and the packing requirements for PI967.

SECTION 4-HAZARDS IDENTIFICATION

4.1 Classification
This product is an article which is a sealed battery and as such does not require an SDS per the OSHA hazard commubication standards unless ruptured. The hzaards indicated are for a ruptured battery

Acute toxicity – Oral	Category 4
Acute toxicity - Dermal	Category 4
Skin corrosion/irritation	Category 1 Sub-category C
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1

4.2 Label elements

4.2.1 Singal word Danger

4.2.2 Hazard Statements
Harmful if swallowed
Toxic if swallowed
Harmful in contact with skin
Cause severe skin burns and eye damage
May cause an allergic or reaction
May cause cancer
Cause damage to organs
May cause respiratory irritation

4.2.3 Symbol

This product is an article which contains a chemical substance. Safety information is given for exposure to the article as solid. Intended use of the product should not result in exposure to the chemical substance, This is a battery. In case of rupture: the above hazards exist.

4.3 Precautionary Statements

4.3.1 Precautionary Statements-Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use personal protective equipment as required.
Wash face, hands and any exposed skin thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.
Keep away from flames and hot surface –no smoking.
Do not breath dust/fume/gas/mist/vapors/spray.
Do not eat, drink or smoke when using this product.
Wear protective gloves

4.3 .2Precautionary Statements – Response
If exposed or connected: Get medical advice/attention. Specific treatment(see supplemental first aid/instruction on this label).
Skin
If on skin: wash with plenty of soap and water. Take off contaminated clothing and water before reuse, if skin irritation or rash occurs: get medical advice/attention if feel unwell.
Eye
If in eyes: Rinse cautiously with water for several minutes, remove contact lenses, if present and easy to do, Continue rinsing. Call a poison center or doctor/physician.
Inhalation
If inhalation: if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or doctor/physician.
Ingestion
If swallowed: rinse mouth, do not induce vomiting ,Call a poison center or doctor/physician if feel unwell.

4.3.3 Precautionary Statements – Storage
Store locked up

4.3.4 Precautionary Statements – Disposal
Dispose of contents/container to an approved waste disposal plant.

Not applicable

4.5 Unknown Toxicity
10% of the mixture consists of ingredient(s) of unknown toxicity.

4.6 Other information
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic

4.7 Interactions with other chemicals
Use of alcoholic beverages may enhance toxic effect.

Since electrolyte is flammable liquid, it does not bring close to fire. It may cause moderate to severe eye irritation, dryness of the skin. Breathing of its mist, vapor or fume may irritate nose, throat and lungs. Exposure of electrolyte material in the area which contains water may generate hydrofluoric acid, which can cause immediate burns on skin, severe eye burn. The ingestion of electrolyte can cause serious chemical burns of mouth, esophagus and gastrointestinal tract.

SECTION 5-FIRST-AID MEASURES

- Eyes:Flush with water for at leadt 15 minutes.If initation occurs and persists,contact a medical doctor.
- Skin:Remove contaminated clothing and thoroughly wash with soap and plenty of water.If initation persists,contact a medical doctor.
- Inhalation:Remove to fresh air.If breathing difficulty or discomfort occurs and persists,see a medical doctor. If breathing has stopped,give artificial respiration and see a medical doctor IMMEDIATELY.

SECTION 6-FIRE-FIGHTING MEASURE

► Hazardous Combustion Products: When burned,hazardous products of combustion including fumes of carbon monoxide, carbon dioxide,and fluorine can occur.

► Exitinguishing Media: Water,carbon dioxide,dry chenical,or foam.

► Basic Fire Fighting Procedures: Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

► Unusual Fire & Explosion Hazards: This material does not represent an unusual fire or explosin\on hazard.

Flash Point :38℃(CC)(100F) .
Autolgnition Temperature:No Data.
Flammability Limits in Air,Lower,% by Volume:1.4.
Flammability Limits in air,Upper,% by Volume:11.

SECTON 7-ACCIDENTAL RELEASE MEASURES

► Procedure for Release and Spill:Sweep up and place in a suitable container, dispose or waste according to all local,state and Federal Laws and Regulations.

► Befre cleanup measures begin,review the entire MSDS with particular attention potential Health Effects;and on Recom-mended Personal Protective Equipment.

SECTION 8-HANDLING AND STORAGE

► Handling Specific safe handling advice: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater.Do not expose to strong oxdizers.Do not give a strong mechanical shock or throw down. Never disassemble,modify or deform.Do not connect the positive terminal to the negative terminal with electrically conductive material.

► Storage conditions(suitable,to be avoided):Do not place the battery cell near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery cell life and degrade performance.

Store in cool place(temperature:-20-45℃, humidity:45-75%).
Incompatible products:conductive materials,water,seawater,strong oxidizers and strong acids.
Packing material (recommended,not suitable): Insulative and tearprllf materials are recommended.

SECTION 9-EXPOSURE CONTROLS/PERSONAL PROTECTION

► Engineering controls: Investigate engineering techniques to reduce exposures use with adequate ventilation and recommended personal protective equipment.

► Eye/Face protection:Use good industrial practice to avoid eye contact.Processing of this product releases vapors or fumes which may cause eye initation.Where eye contact may be likely wear chemical goggles and have eye flushing equipment available.

► Skin protection:Minimize skin contamination by following good industrial hygiene practices.Wearing protective gloves is recommended.Wash hands and contaminated skin thoroughly after handling.

► Respiratory protection: Avoid breathing dust and processing vapors.When adequate ventilation is not available,wear a NIOSH/MSHA respirator approved for protection against inorganis\c dusts.

► Special clothing: Robber gloves.

SECTION 10-HYSICA DATE

Physical state: Solid
Form:Geometric color (without outer PVC COVER)
Odor : No odor
pH:Not Applicable
Flash point: Not Applicable
Density: Not Applicable
Solubility: Not Soluble.

SECTION 11-STABILITY AND REACTIVITY

Hazardous reactions may occur under some specific conditions.

- Conditions to avoid: When a battery cell is exposed to an external short-circuit,crushes,modification,high temperature above 100 degree C, it will be the cause of heat generation and ignition.Avoid to be exposed to direct sunlight and high humidity.
- Materials to avoid: Conductive materials,water,seawater,strong oxidizers and strong acids.
- Hazardous decomposition products: Acrid or harmful gas is emitted during fire.

SECTION 12-TOXICOLOGICAL INFORMATION

Eco toxicological Information:No information available.
Local Environmental Effects: Unknown.
Since some internal materials remain in the environment,do not bury or throw out into the environment.

SECTION 13-DISPOSAL INFORMATION

Waste disposal must be in accordance with the applicable regulations.Disposal of the lithium ion battery cells should be performed by permitted, professional disposal Page:
firms knowledgeable in State or Local requirements of hazardous waste treatment and hazardous waste transportation.Incineration should never be performed by battery but users,eventually by trained professional in authorized facility wity proper gas and fume treatment.

SECTION 14-TRANSPORTATION/SHIPPING INPORMATION

1.US DOT,ALL CosMX batteries are not subject to the requirements of the Department of Transportation (DOT) subchapter C,Hazardous Material Regulations since each CosMX battery meets the exceptions under 173.185(b). The CosMX batteries are exempted from the US DOT regulations as long as they are separated to prevent short circuits and packed in strong packing for conditions normally encountered in transportation.

2.ICAO and IATA, The lithium battery should according with the International Air Transport Association (IATA DGR 62nd edition) requirements for transportation. The battery or cell should be packed and signed as following table（If the package according with PI-965 section II or sectio IB / PI-966 section II / PI-967 SectionⅡ， it is not classified as dangerous cargo）.

UN NO.	Proper Shipping Name	Power	Package requirements	Label which need to paste
UN3480	Lithium Ion Batteries (limited to a maximum of 30% SoC)	Cell≤20Wh Battery≤100Wh	PI965 section II	lithium battery handling label Cargo Aircraft Only label
		Cell≤20Wh Battery≤100Wh	PI965 section IB	Class 9 hazard label lithium battery handling label Cargo Aircraft Only label

		Cell＞20Wh Battery＞100Wh	PI965 section IA	Class 9 hazard label Cargo Aircraft Only label
UN3481	Lithium Ion Batteries Contained in Equipment	Cell≤20Wh Battery≤100Wh	PI967 section II	lithium battery handling label
		Cell＞20Wh Battery＞100Wh	PI967 section I	Class 9 hazard label
UN3481	Lithium Ion Batteries Packed With Equipment	Cell≤20Wh Battery≤100Wh	PI966 section II	lithium battery handling label
		Cell＞20Wh Battery＞100Wh	PI966 section I	Class 9 hazard label

Do not damage or mishandle this package. If package is damaged,batteries must be quarantined, inspected, and repacked.Cells and batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport .Waste lithium batteries and lithium batteries being shipped for recycling or disposal are prohibited from air transport unless approved by the appropriate national authority of the State of origin and the State of the operator.

3.The lithium battery shall be complied with the special provision 188 of IMDG CODE(Amdt.39-18)and lithium battery packaging specification P903.

4.The lithium battery shall be complied with the requiremint in Special Provisions "188"and"230".

5.BUILDING OF NEW BATTERY PACK-if you build any of Cosmx lithium batteries into battery pack, you must assure that ther are being tested in accordance with the UN Model Regulation,Manual of Test and Criteria,Part III,subsection 38.3.

The consignment should be fully described by proper shipping name and packed,marked and in proper condition for carriage by air .The consignment is not classified as dangerous under the current edition of the IATA 62nd edition Effective 01-January-2021.Dangerous goods regulation and all applicable carrier and government regulations.

SECTION 15-Regulatory Information

1.The transportation of the lithium batteries is regulated by nations "Model Regulations on Transport of Dangerous Goods".
2.Lithium batteries and cells are subjected to shipping requirements exceptions under 49 CFR 173.185.
3.Shipping of lithium batteries in aircrafts are regulated by the international civil aviation organization (ICAO) and the international air transport association (IATA) requirements in special provision UN3480 PI965 ,UN3481 PI966 or PI967.
4. Shipping of lithium batteries on sea are regulated the international maritime dangerous goods (IMDG) requirements of UN3480.
5.Cobalt compounds supposed hazardous and e subjected to reporting requirements of section 313 of title 1:1 of the suspended are amendments and reauthorization act of 1986 (SARA) and 40 CFR part 372.

SECTION 16-Other Information

The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. DBK makes no warranty expressed or implied with respect to lithium content content information is available from DBK on request.

Remark:The batteries have past UN38.3 authentication and are safe for transportation,and it is advised to use dry power powder fire extingguisher in case of explosion or inflammation