珠海冠宇电池股份有限公司
ZHU HAI COSMX BATTERY Co.,Ltd
No.209,Zhufeng Way,Xinqing Science & Technology Park,Doumen District,Zhuhai519180, P.R.China
珠海市斗门区新青科技工业园珠峰大道209号
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MATERIAL SAFETY DATA SHEET

Ref No:ARC 20230101-227

PRODUCT NAME:产品名称 Rechargeable Lithium Polymer single cell Battery, PACK
可充电聚合物锂离子电池

CHEMICAL SYSTEM:化学系统 Lithium Ion锂离子 Designed for Recharge: yes可充电设计：是

PRODUCT MODEL:产品型号 **QM45**

Nominal Capacity: 额定容量 4365mAh Nominal Voltage:额定电压 3.89 V

SECTION 1- MANUFACTURE INFORMATION 第1节-生产信息

Manufactured By:生产于:

ZHU HAI COSMX BATTERY Co.,Ltd 珠海冠宇电池股份有限公司

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Telephone Number for Information联系信息

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

Zip Code:邮编： 519180

Effective Date:生效日期：01-01-2024

SECTION 2-HAZARDS IDENTIFICATION第2节-危害识别

2.1 Classification 类别
This chemical is not considered hazardous by the Regulation (EC) No 1272/2008 (CLP). This product is an article which is a sealed battery and as such does not require an SDS per the Regulation (EC) No 1272/2008 (CLP) unless ruptured. The hazards indicated are for a ruptured battery.
该化学品不被法规(EC)No.1272/2008(CLP)认为是危险的。本产品为密封电池，因此，除非破裂，不需要SDS (EC) No.1272/2008（CLP)。
以下提到的危险 是电池破裂造成的

Acute toxicity – Oral 急性中毒-口述	Category 4
Acute toxicity - Dermal 急性中毒-表层	Category 4
Skin corrosion/irritation 皮肤腐蚀/刺激	Category 1 Sub-category C
Serious eye damage/eye irritation 眼部严重受损/眼部刺激	Category 1
Skin sensitization 皮肤过敏	Category 1
Carcinogenicity致癌	Category 2
Specific target organ toxicity (repeated exposure)特殊器官中毒（反复接触）	Category 1

2.2 Label elements 标签内容

2.2.1 Singal word Danger 单个字体 危险

2.2.2 Hazard Statements 危害声明
Harmful if swallowed 吞食有害
Toxic if swallowed 鼓胀有毒性
Harmful in contact with skin 接触皮肤有危害性
Cause severe skin burns and eye damage 会引起皮肤严重烧伤，眼部灼伤
May cause an allergic or reaction可能会引起过敏与不适
May cause cancer 可能会引起癌症
Cause damage to organs 可能引起器官受损
May cause respiratory irritation 可能引起呼吸刺激

2.2.3 Symbol 标识





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.
本产品是含有化学物质的物品。 安全信息是针对暴露在固体中的物品给出的。 产品的预期用途不应导致接触化学物质，此电池一旦发生破裂将存在上述危害

2.3 Precautionary Statements 预防声明

2.3.1 Precautionary Statements-Prevention预防声明--阻止
Obtain special instructions before use.使用前获取特殊说明
Do not handle until all safety precautions have been read and understood.所有安全措施阅读并理解后才能使用
Use personal protective equipment as required.如有需要请使用个人防护设备
Wash face, hands and any exposed skin thoroughly after handling.使用后彻底地用清水洗脸，洗手。
Contaminated work clothing should not be allowed out of the workplace.受污染的工作服不允许带离工作区域。
Keep away from flames and hot surface –no smoking.远离烟火和高温--不许吸烟
Do not breath dust/fume/gas/mist/vapors/spray.不能吸取粉尘/烟雾/气体/雾气/蒸汽/喷雾
Do not eat, drink or smoke when using this product.使用本产品时请勿进食、饮水或吸烟。
Wear protective gloves佩戴手套防护

2.3.2 Precautionary Statements – Response预防声明--响应
If exposed or connected: Get medical advice/attention. Specific treatment(see supplemental first aid/instruction on this label).如有暴露或者接触：获取医学建议或警示。特殊治疗（查看补充的急救措施或在标签上说明)
Skin 皮肤
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.
如果在皮肤上：用大量肥皂和水清洗。 如果发生皮肤刺激或皮疹，请在再次使用前脱掉受污染的衣服和水：如果感觉不适，请即刻就诊。
Eye 眼睛
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.
如果进入眼睛：用水小心冲洗几分钟，取下隐形眼镜（如果存在且易于操作），继续冲洗。 呼叫急救中心或医生。
Inhalation 吸入
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.
如果吸入:如果呼吸困难，将患者转移到空气新鲜的地方，并保持一个适合呼吸的姿势休息。 如果出现呼吸道症状:呼叫急救中心或医生。
Ingestion摄入
If swallowed: rinse mouth, do not induce vomiting ,Call a poison center or doctor/physician if feel unwell.
如果误食：漱口，不要催吐，如果感觉不适，请呼叫急救中心或医生。

2.3.3 Precautionary Statements – Storage预防声明-存储
Store locked up 关闭封锁存储

2.3.4 Precautionary Statements – Disposal 预防声明-处理
Dispose of contents/container to an approved waste disposal plant.将物品/容器弃置到认可的废物处理工厂。

2.4 Hazards not otherwise classified (HNOC)
Not applicable不适用

2.5 Other information 其他信息
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic 对水生生物有害，可能对水体造成长期不良影响。

2.6 Interactions with other chemicals与其他化学成分相互反应
Use of alcoholic beverages may enhance toxic effect.用含有酒精成分的饮料可能会增加毒性反应

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.由于电解液是易燃液体，它不能靠近火源。它会导致中度到重度的眼睛过敏、皮肤干燥。吸入它的雾气或蒸汽会刺激鼻子、喉咙和肺。电解液如果暴露于有水的环境，则会生成氢氟酸，这可能会导致皮肤瞬间烧伤，严重的眼睛烧伤。电解液的摄入可以导致口腔、食道和胃肠道严重的化学烧伤。

SECTION 3- MATERIAL COMPOSITION AND COMPOSITION INFORMATION 第3节-成分信息

IMPORTANT NOTE: The battery should not be opened or burned.Exposure to the ingredients contained within or their combustion products could be harmful.重要提示:不得打开或焚烧电池，接触电池内部材料或其燃烧产物中可能有害。

MATERIAL OR INGREDIENT 产品主要成分	CAS NO.	wt%
Lithium cobaltate 钴酸锂	12190-79-3	30~50
Graphite 石墨	7782-42-5	15~30
Aluminium 铝	7429-90-5	5~10
Copper 铜	7440-50-8	5~10
Carbon Black 炭黑	1333-86-4	0~2
Carboxymethyl cellulose 羧甲基纤维素	9004-32-4	0~1
POLY(PROPYLENE-CO-ETHYLENE) 1-丙烯与乙烯的聚合物	9010-79-1	0.3~1.5
Polyvinylidene fluoride 聚偏氟乙烯树脂	24937-79-9	0~2
Benzene, ethenyl-, polymer with 1,3-butadiene聚苯乙烯丁二烯共聚物	9003-55-8	0~1.5
Aluminum oxide (AlO2)(9CI) 氧化铝	11092-32-3	0~1.5
polyethylene 聚乙烯	9002-88-4	0~1
Nickel 镍	7440-02-0	0.1~2
4-Fluoro-1,3-dioxolan-2-one 氟代碳酸乙烯酯	114435-02-8	0~5
Ethylene carbonate 碳酸乙烯酯	96-49-1	0~10
Diethyl carbonate 碳酸二乙酯	105-58-8	0~10
Propylene carbonate 碳酸丙烯酯	108-32-7	0~10
Lithium hexafluorophosphate 六氟磷酸锂	21324-40-3	0~5
1,3-Propanesultone 1,3-丙烷磺内酯	1120-71-4	0~0.5
Epoxy resin 环氧树脂	25085-99-8	0~0.1
Acrylate monomer 丙烯酸酯单体	28961-43-5	0~0.1
acrylic acid 丙烯酸	79-10-7	0~0.2
glass fiber cloth 玻璃纤维布	65997-17-3	0~3
poly(ethylene terephthalate) 聚酯切片	25038-59-9	0~0.2
Tin 锡	7440-31-5	0~0.1
Titanium dioxide 二氧化钛	13463-67-7	0~0.1

SECTION 4-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.

第4节 急救措施

眼睛：用水冲洗至少15分钟．如刺激仍存在，需要就医．
皮肤：移除被污染的衣服，用肥皂在大量的水下清洗彻底．如刺激仍存在，需要就医．
吸入：转移至新鲜空气中，如呼吸困难和难受仍存在，需要就医．如果呼吸停止，需要做人工呼吸并立即紧急就医．

SECTION 5-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.
Flammability point:100℃(CC)(100F) .
Autolgnition Temperature:No Data.
Flammability Limits in Air,Lower,% by Volume:1.4.
Flammability Limits in air,Upper,% by Volume:11.

第5节 消防措施

有害燃烧产物：燃烧时，有害燃烧产物包括一氧化碳气体、二氧化碳、氟。
灭火剂：水、二氧化碳、干粉灭火剂或泡沫。
基本消防程序：穿通过美国职业安全与卫生研究院 / 矿山安全和健康管理局批准的正压自给式呼吸器和防护服以防止有害物质与皮肤和眼睛接触。
特殊燃烧和爆炸危险：这种物料并不代表特殊燃烧或爆炸危险。
燃点:100℃(CC)(100 f)。
自燃温度:没有数据。
在空气中可燃性限制，下限,按体积%: 1.4。
在空气中可燃性限制，上限,按体积%: 11。

SECTON 6- ACCIDENTAL RELEASE MEASURES

If the battery material is released, remove personnel from area until the batteries cool down and fumes dissipate .
Provide maximum ventilation to clear out hazardous gases and avoid skin and eye contact or inhalation of vapors .
Remove spilled liquid with absorbent and incinerate waste.

第6节- 意外泄露措施

如如果电池材料被释放，请将人员从该区域撤旁，直到电池冷却和烟雾消散。
提供最大的通风以清除有害气体和避免皮肤和眼睛接触或吸入蒸汽。
用吸收剂除去溢出的液体并焚烧废物。

SECTION 7-HANDLING AND STORAGE

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.

第7节 - 处理和储存

具体安全操作建议：不要将电芯扔入火中或暴露于高温环境中。不要将电芯浸泡水或海水里，不要暴露于强氧化剂中。不要给电芯很强的机械冲击或扔落。千万不要对电芯做拆解、修改或改变形状。不要用导电材料连接正负两极。
存储条件（恰当的，需要避免的）：不要存放在发热的设备附近，或长时间直接暴露于阳光中，高温会缩短电池的寿命和降低性能。
存放于阴凉地方（温度：-20-30℃, 湿度:45-85%)
不相容的产品:导电材料、水、海水、强氧化剂、强酸。
包装材料(推荐的，不适合的):推荐绝缘和耐磨材料。

SECTION 8-EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Investigate engineering techniques to reduce exposures use with adequate ventilation and recommended personal protective equipment.
Eyes Protection: Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured battery.
Skin protection: Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.
Respiratory protection: Not necessary under conditions of normal use. Wear self contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.
Other Protections: No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.
第8节 - 泄露控制 / 个人防护
工程控制：研究相应的工程技术，通过足够的通风和推荐的个人防护设备以减少曝露作业。
眼睛保护：在正常使用条件下不需要。如果处理泄漏或破裂的电池，请戴上防护眼镜。
皮肤保护: 正常使用情况下不需要。 在处理电池泄漏或破裂时，应穿防火、防毒服。
呼吸防护：在正常使用条件下不需要。如果环境内气体密度超过空气中的密度，请佩戴自给式呼吸过滤器。在紧急救援或疏散的情况下 ，佩戴呼吸器。
工作场所禁止吸烟、就餐和饮水。保持良好的卫生习惯。

SECTION 9-PHYSICAL/CHEMICAL PROPERTIES

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.
第9节 - 物理数据
物理状态: 固体
形式:几何颜色(没有外PVC盖)
气味:无味
pH值:不适用
燃点:不适用
密度:不适用
溶解度:不溶性。

SECTION 10-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.
第10节 - 稳定性与反应活性
在一些特定的条件下可能发生危险反应。
应避免之条件:当电池暴露在外部短路、挤压、变形、高温100度以上,这些将导致发热和燃烧。避免暴露于阳光直射和高湿度环境中。
应避免之物质:导电材料、水、海水、强氧化剂、强酸。
应避免之危险分解产品:刺激或有害气体在火中的排放。

SECTION 11-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.
第11节 - 毒理学资料
生态毒理学资料:无可用信息。
当地的环境影响:未知。
由于一些内部材料会残留在环境里,故不要埋葬或扔到环境中。

SECTION 12-ECOLOGICAL INFORMATION

Eco-toxicity：No information is available.
Biodegradable：No information is available.
Mobility in soil：No information is available.
Bioconcentration or biological accumulation：No information is available.
Other harmful effects：Don't abandon the battery into environment, may cause water or soil pollution.
第12节-生态信息
生态毒性：没有可用的信息。
生物降解性：没有可用的信息。
土壤流动性：没有可用的信息。
生物浓缩或生物积累：没有可用的信息。
其他有害影响：不要将电池扔进环境中，可能造成水或土壤污染。

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.
第 13 节 - 废弃处理
废物处置必须依照国家有关规定。锂离子电池的报废应该由专业的被核准的公司进行报废:
此公司应该通晓本国或当地关于危险废物处理和危险废物运输的要求，焚化绝不能由用户来执行，而最终由训练有素的人员采用有合适的废气和烟雾处理的经认可的专用设备来执行。

SECTION 14-TRANSPORTATION/SHIPPING INPORMATION 第14节 - 运输 / 运送信息

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.
美国运输部US DOT， 冠宇所有的电池不受运输部门的分章C有害物质法规的要求，因为冠宇的电池型号符合173.185(b)的免责条例。冠宇电池具有美国运输部门的豁免权，即只要电池是隔开的防止短路并用牢固的包装箱包装以应对运输中的各种条件。

2.ICAO and IATA, The lithium battery should according with the International Air Transport Association (IATA DGR 65th edition) requirements for transportation. The battery or cell should be packed according to the following table.
国际民航组织ICAO 和国际航空运输协会 IATA，锂电池必须按IATA(IATA-DGR 65th 版)要求进行运输。锂电池组或锂电池应按下表包装

UN NO.	Proper Shipping Name	Power	Package	Label which need to paste标签贴合需求
UN3480	Lithium Ion Batteries (limited to a maximum of 30% SoC)锂离子聚合物电池（SOC等于或小于30%）	Cell≤20Wh Battery≤100Wh	PI965 section IB	Class 9 hazard label 第九类危险品标签 lithium battery handling label锂电池操作标签 Cargo Aircraft Only label仅限货机标签
		Cell > 20Wh Battery > 100Wh	PI965 section IA	Class 9 hazard label 第九类危险品标签 Cargo Aircraft Only label仅限货机标签
UN3481	Lithium Ion Batteries Contained in Equipment锂离子聚合物电池包含在设备中	Cell≤20Wh Battery≤100Wh	PI967 section II	lithium battery handling label锂电池操作标签
		Cell > 20Wh Battery > 100Wh	PI967 section I	Class 9 hazard label第九类危险品标签
UN3481	Lithium Ion Batteries Packed With Equipment锂离子聚合物电池与设备包装	Cell≤20Wh Battery≤100Wh	PI966 section II	lithium battery handling label锂电池操作标签
		Cell > 20Wh Battery > 100Wh	PI966 section I	Class 9 hazard label第九类危险品标签

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.
请勿损坏或误操作此包裹。 如果包装损坏，必须对电池进行隔离、检查和重新包装。 制造商确定出于安全原因有缺陷或已损坏的电池和电池可能会产生热、火灾或短路的危险演变 禁止运输。除非得到原产国和运营人所在国的有关国家当局的批准，否则禁止航空运输废弃锂电池和运输以回收或处置的锂电池 .

3.The lithium battery shall be complied with the special provision 188 of IMDG CODE(Amend.41-22)and lithium battery packaging specification P903.
锂电池应遵守《国际海运危险货物规则》特殊规定188（Amend.41-22)和锂电池包装规范P903.

4.The lithium battery shall be complied with the requiremint in Special Provisions "188"and"230".
锂电池应符合“188”和“230”特殊规定的要求。

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.
建设新电池包装-当你用冠宇锂电池做电池包装,你必须保证它能按照联合国监管模型做测试，测试遵循分段38.3第三部分,手动测试和标准。

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 65th edition (Effective 01-January-2024) and should be packed in UN special case.
托运货物应完整描述正确的运输名称，并包装、标记并处于适合空运的适当状态。
根据当前版本的 IATA 第 65 版（2024 年 1 月 1 日生效），该托运货物未被归类为危险物品，应使用联合国特制箱包装。

SECTION 15-REGULATORY INFORMATION
1.Dangerous Goods Regulation (DGR).
2.Recommendations on the Transport of Dangerous Goods Model Regulations.
3.International Maritime Dangerous Goods (IMDG).
4. Occupational Safety and Health Act (OSHA)
5.Toxic Substances Control Act (TSCA).
6. Code of Federal Regulations (CFR)
7. Technical Instructions for the Safe Transport of Dangerous Goods
8. California Proposition 65
9. Superfund Amendments and Reauthorization Act Title III (302/311/312/313) (SARA)
10. Globally Harmonized System of Classification and Labeling of Chemicals(GHS)
In accordance with all Federal, State and local laws.

第15节- 监管信息
1.《危险品条例》(DGR) 。
2. 关于危险货物运输示范条例的建议。
3.《国际海运危险货物》（IMDG）。
4.《职业安全与健康法》（OSHA）
5.《有毒物质控制法》。
6.《联邦法规》（CFR）
7.《危险货物安全运输技术规程》
8. 加州65号提案
9.《超级基金修订和再授权法案》第三篇（302/311/312/313）（SARA）
10. 全球化学品统一分类和标签制度
符合所有联邦、州和地方法律。

SECTION 16-OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. We make no warranty of merchantability or any other warranty express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damage of any third party or for last profits or any special, indirect, consequential or exemplary damages arising from using the above information.

第16节-其他信息

上述信息被认为是正确的，但并不意味着是全面的，只能用作指导。我们对此类信息的适销性或任何其他明示或暗示的担保不做任何保证，我们也不承担因使用此类信息而产生的任何责任。用户应自行调查，以确定信息是否适合其特定目的。对于任何第三方的任何索赔、损失或损害，或者由于使用上述信息而产生的任何特殊、间接、后果性或示范性损害，我们概不负责。

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

备注:电池通过了UN38.3认证，运输也是安全的,并建议燃烧或爆炸时使用干粉灭火器灭火。