



Necplus B.V.

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MATERIAL SAFETY DATA SHEET

Material Safety Data Sheet for Ultra2 with Kokam SLPB batteries.

Product Name:	Rechargeable LED working light, Model Ultra2.
Manufacturer:	Necplus B.V. Emopad 38 5663 PB Geldrop The Netherlands
Product description:	The Ultra2 is a LED working light equipped with rechargeable batteries. The Ultra2 comes as: Ultra2-8h, Ultra2-4h, Ultra2-2h Ultra2-8h with 16 cells, each <11,8Wh. Battery <100Wh., approx 1,3kg. Ultra2-4h with 8 cells, each <11,8Wh. Battery <100Wh. , approx 0,65kg. Ultra2-2h with 4 cells, each <11,8Wh. Battery <100Wh. , approx 0,33kg.
Batteries:	The Ultra2 is equipped with two rechargeable batteries, each consisting of 8, 4 or 2 cells as defined here above. The batteries are an inseparable part of the lamp. The batteries may not be removed by non-authorized personnel.
Battery type:	KOKAM Superior Lithium Polymer Battery (SLPB) of the SLPB Series.
Manufacturer of the batteries:	Kokam Co., Ltd. Head office : 30-78, Gyeongsu-daero 1220beon-gil, Jangan-gu, Suwon-si, Gyeonggi-Do, South Korea 440-851 Factory : 19, Gayagongdan-gil, Gayagok-myeon, Nonsan-si, Chungcheongnam-do, South Korea 320-844

Material Safety Data Sheet for Ultra2 with Kokam SLPB batteries.

Section 1 Chemical Product And Company Identification

Product Name:	Superior Lithium Polymer Battery (SLPB)
Battery Type:	Rechargeable Battery
Description:	Lithium Cobalt Manganese Nickel Oxide
Model:	SLPB Series
Electrochemical System:	Negative Electrode : Carbon Positive Electrode : Lithium Cobalt Manganese Nickel Oxide (LiMnNiCoO ₂) Electrolyte : Solution of lithium hexafluorophosphate (LiPF ₆) in a mixture of organic solvent _ Ethylene Carbonate(EC) + Ethymethyl Carbonate(EMC)
Overall Chemical Reaction:	$Li_xC_6 + Li_{1-x} \leftrightarrow C_6 + LiMnNiCoO_2$
Manufactured by:	Kokam Co., Ltd.
Address:	Suwon-si, Gyeonggi-Do, South Korea 440-851 Factory : 19, Gayagongdan-gil, Gayagok-myeon, Nonsan-si, Chungcheongnam-do, South Korea 320-844
Emergency Situation	For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 CCN200262 Outside USA and Canada: +82 31-362 0100
Technical Information	82-31-362-0100 or 82-41-740-3800
Date Prepared :	August 21, 2006
Revision No :	13
Revision Date :	September 17, 2013

The information contained herein is provided solely for the purposes of general explanation and illustration, and is subject to modification without notice. No warranty or guarantee is given in regards to the information contained herein or the referenced products.

Section 2 Definition of Hazards

Emergency overview:

- Do not open or disassemble.
- Do not expose to fire or open flame.
- Do not mix with batteries of varying sizes, chemistries or types.
- Do not puncture, deform incinerate or heat above 85 °C.

Potential health effects:

The materials contained in this battery may only represent a hazard if the integrity of the battery is compromised or if the battery is physically or electrically abused.

(1) Physical:

- The Lithium ion polymer 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 and use, the solid electrode materials and liquid electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain intact.
- Risk of exposure is only in case of abuse (mechanical, thermal, electrical) leading to the activation of safety valves and/or the rupture of the battery containers. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

(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 advice(2)
182442-95-1	LiMnNiCoO ₂	>1000 °C	N/A	0.1mg/m ³ as Co 1.0mg/m ³ as Ni OSHA		R22 R43	S2 S22 S24 S26 S36
EC : 96-49-1 EMC : 623-53-0	Organic Solvents (EC-EMC)	EC : 38 °C EMC : 4 °C	EC : 243 °C EMC : 90 °C	None established OSHA	Flammable	R21 R22 R41 R42/43	S2 S24 S26 S35 S37 S45
21324-40-3	LiPF ₆	N/A (decomposes at 160 °C)	N/A	None established OSHA	Irritant Corrosive	R14 R21 R22 R41 R43	S2 S8 S22 S24 S26 S36 S37 S45

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Ultra2 with Kokam SLPB Batteries

1) Nature of special risks:

- R14 Reacts with water
- R21 Harmful in contact with skin
- R22 Harmful if swallowed
- R41 Risk of serious eye damage
- R42/43 May cause irritation when inhaled or when substances come in contact with skin
- R43 May cause irritation when substances come in contact with skin

2) Safety recommendations:

- S2 Keep out of reach from children
- S8 Keep away from moisture
- S22 Do not breathe dust
- S24 Avoid contact with skin
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical attention
- S36 Wear suitable protective clothing
- S37 Wear suitable gloves

Section 3 Product Composition

Chemical Name	CAS #	ACGIH TLV	Percent of Content
Lithium Cobalt Manganese Nickel Oxide(LiMnNiCoO ₂)	182442-95-1	0.02mg/m ³ as Co 0.2mg/m ³ as Mn 0.2mg/m ³ as Ni	20-50
Carbon(Graphite, Proprietary)	7782-42-5	2mg/m ³ (R)	15-35
PVDF(Polyvinylidene Fluoride)	24937-79-9		<8
Aluminum Foil	7429-90-5		3-12
Copper Foil	7440-50-8		3-12
Electrolyte	EC : 96-49-1 EMC : 623-53-0 LiPF ₆ : 21324-40-3		10-20
Al Film Cover	N/A		<5
Chemical Name	CAS #	ACGIH TLV	Percent of Content
Lithium Cobalt Manganese Nickel Oxide(LiMnNiCoO ₂)	182442-95-1	0.02mg/m ³ as Co 0.2mg/m ³ as Mn 0.2mg/m ³ as Ni	20-50

The balance of the battery is inert materials

- ACGIH: American Council of Government Industrial Hygienists
- TLV: Threshold Limit Value are personal exposure limits determined by the ACGIH

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Section 4 First Aid Measures

In the event of battery rupture or explosion, evacuate personnel from contaminated area and provide maximum ventilation to clear out fumes/gases. In all cases, seek immediate 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 grease or ointments.
- Ingestion:** Dilute by drinking plenty of water and seek immediate medical attention.
If substances are swallowed, be sure that aspiration of vomit does not occur.
Ensure that mucus does not obstruct the airway.
Do not prescribe oral medication/aid to an unconscious person.
- Inhalation:** Ventilate the contaminated area and evacuate affected personnel.
Provide oxygen or artificial respiration, if necessary.

Section 5 Firefighting Measures

Fire and Explosion Hazards:

The battery can leak and/or release vaporized or decomposed and combustible electrolyte fumes when exposed to temperatures above 70 °C; when improperly handled; or due to the environment.

Cells or batteries may flame or leak potentially hazardous vapors if exposed to excessive heat or fire. Fire, excessive heat, or over voltage can potentially be hazardous and lead to decomposition of products.

Damaged or opened cells or batteries can result in rapid heating and the release of flammable vapors.

Vapors may be heavier than air and may travel on ground or be moved by ventilation to an ignition source and flash back.

Use a positive pressure self-contained breathing apparatus if batteries are contained in a fire. Full protective clothing is necessary. During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.

Extinguishing Media: Suitable: CO₂, Water

Ultra2 with Kokam SLPB Batteries

Dry chemical or Foam extinguishers or Type D extinguishers

- Special Exposure Hazards:** If cells overheat due to an external source or 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 an irritant and can damage 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 ruptured battery can cause respiratory tract, mucus, membrane irritation and edema.
- Special Protective Equipment:** Use self-contained breathing apparatus to avoid breathing irritant fumes. Wear protective clothing and wash the body with an electrolyte solution.

Section 6 Accidental Release Measures

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

Using a shovel or broom, cover the battery or expelled substances with dry sand or vermiculite. Place the battery in a separate container (after cooling, if necessary) and dispose in accordance with local regulations.

Section 7 Handling and Storage

The Ultra2 should not be opened. The battery pack contains no parts that require maintenance and may not be replaced by the user. Batteries should not be disassembled, destroyed or incinerated as they may leak, rupture and release chemicals into the environment.

Handling:

Batteries are designed to be recharged. However, improperly charging a cell or battery may cause the cell or battery to ignite.

Use only the approved Necplus charger and follow standard operating procedures.

Never disassemble a battery or bypass any safety device.

Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods.

Do not throw into fire.

Ultra2 with Kokam SLPB Batteries

Storage:

Do not store the Ultra2 above 60°C or below -20°C.

Exposure of the Ultra2 to temperatures in excess of 130°C will result in the battery emitting flammable liquid and gases.

Do not place the Ultra2 near heating equipment.

The standby time of the Ultra2 work light is more than six months. The work light should be regularly charged to prevent the battery voltage from decreasing too much due to self-discharge. The Ultra2 work light may only be charged in a safe area using the supplied NEC+ charger. See manual.

Other: Follow the manufacturer's recommendations regarding operating temperature range.

Section 8 Exposure Controls / Protective Measures

No engineering controls are required for handling batteries that have not been damaged.

Respiratory protection: *Not necessary under normal use.*

In event of battery rupture, use self-contained full-face respiratory equipment.

Hand Protection: *Not necessary under normal use.*

Use gloves when handling a leaking or ruptured battery.

Eye Protection: *Not necessary under normal use.*

Wear safety goggles/glasses with side shields if handling a leaking or ruptured battery.

Skin Protection: *Not necessary under normal use.*

Use rubber protective working when handling of a ruptured battery.

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Section 9 Physical And Chemical Properties

Temperature Range:

	Continuous	Occasional
In storage	+30°C max	-20/+60°C
During discharge	-20/+45°C	-20/+45°C
During charge	0/+45°C	0/+45°C

Section 10 Stability And Reactivity

- Conditions to Avoid:** Heat above 60 °C
 Deform, mutilate, crush, pierce, disassemble.
 Short circuit
 Prolonged exposure to humid conditions
- Materials to avoid:** N/A
- Hazardous Conditions:** Fire, excessive heat, or over voltage may result in decomposition of product.

Section 11 Toxicological Information

- (1) Irritancy: The electrolytes contained in this battery can irritate eyes with any direct contact.
 Prolonged contact with the skin or mucous membranes may cause irritation.
- (2) Sensitization: No information is available at this time.
- (3) Carcinogenicity: No information is available at this time.
- (4) Reproductive toxicity: No information is available at this time.
- (5) Teratogenicity: No information is available at this time.
- (6) Mutagenicity: No information is available at this time.

Section 12 Ecological Information

Not applicable to this material / product.

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Section 13 Disposal Considerations

- Dispose in accordance with applicable regulations according to country.
(In most countries, the disposal of used batteries is forbidden and the end-users are invited to dispose them properly).
- Do not open the Ultra2 and return the unopened lamp to the seller or manufacturer.
- Batteries should be completely discharged prior to disposal and/or the terminals taped or capped to prevent short circuit.
- When completely discharged, it is not considered hazardous.
- This product does not contain any materials listed by the United States EPA as requiring specific waste disposal requirements.
- These are exempted from the hazardous waste disposal standards under Universal Waste Regulations. Disposal of large quantities of Lithium-ion batteries or cells may be subject to federal, state, or local regulations.
- Consult your local, state and provincial regulations regarding disposal of these batteries.

Section 14 Transporting Product

Transportation

Vj g'f guki p'qh'vj g'Wmtc4'tgej cti gcdrg'NGF'y qtnlri j v'ku'dcugf "wr qp'Gwtqr gcp"
f ltevkxg'42361561GWqp'gzi nqkqp'uchgv{ "C VGZ "336+cpf "ku'f guki pgf "vq'dg"
uchg'gxgp'wpf gt'vphqtguggp'ektewo ucpegu0J gtgv'cp'kptkpkulecm' "uchg'f guki p
j cu'dggp'cr r rkgf . 'egtwhkf "d{ "cp'kpf gr gpf gpvP qwhkf "Dqf { 0Vj g'iki j v'ku'uchg"
wpf gt'pqto cniqr gtcvkqp'dw'cnuq'c'r quukdrg'hckwtg'qh'qpg'qh'vj g'eqo r qpgpw"
ku'cngp'kpv'ceeqwpv'kpenf kpi "c'r quukdrg'kpvgtpcn'uj qt'vekewk'kp'qpg'qh'vj g'egmu0'
"



Vj g'tqdwu'f guki p'qh'vj g'Wmtc4'j qwulpi 'r tqvew'vj g'dcwtg{ "cpf'kpf kxf wcr'egmu'ci ckpuv
f co ci g'cpf 'uj qt'vekewk'gxgp'kh'vj g'r tqf wev'ku'f tqr r gf 'ltqo 'uki p'khecpv'j gli j w0'
"

Hwtvj gto qtg.'vj g'Wmtc4'ku'r cengf 'kp'c'htko 'ectf dqctf "dqz.'wulpi 'r qn' gyj { rpgg'ewuj kqpu'htq'
cf f k'kqpcnr tqvewkqp0'
"

Vj g'qp"l'qh'uy kej "ecp'p'gxgt'dg'qr gtcvgf "ceekf g'pvcml 0

Data

The Ultra2 has 16 cells in totally two batteries, max 8 cells per battery.
Cell weight: approx 81 gram
Cells <20Wh/cell
Each battery <100Wh/battery.

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Ultra2 with Kokam SLPB Batteries

Land Transport ADR

- UN 3481
- SP188
- Proper shipping name: LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
- Strong packaging
- Short circuit protection
- Protection against unintentional activation
- Max. 30 kg, max 22 pcs Ultra2 / packaging
- Label with telephonenumber +31-(0)40 787311

**Sea Transport IMDG**

- UN 3481
- SP188
- Proper shipping name: LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
- Strong packaging
- Short circuit protection
- Protection against unintentional activation
- Max. 30 kg, max 22 pcs Ultra2 / packaging
- Label with telephonenumber +31-(0)40 787311
- Marine pollutant: NO
- Emergency Schedule F-A, S-I

**Air Transport IATA**

- UN 3481
- PI967, Section II
- Class 9
- Proper shipping name: LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
- Strong packaging
- Short circuit protection
- Protection against unintentional activation
- Subject to weight limitations.
- Label with telephonenumber +31-(0)40 787311



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Section 15 Regulatory Information

The transport of rechargeable Lithium-ion batteries are regulated by the United Nations as detailed in the “UN Recommendations on the Transport of Dangerous Goods – Model Regulations, ST/SG/AC.10/1/Rev.17”. Batteries conform to “UN Recommendations on the Transport of Dangerous Goods - Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.5/Amend.1, Chapter 38.3”.

Section 16 Other Information

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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Additional information is available by calling the telephone number above designated purpose.

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Equipment manufacturer of the Ultra2 is Necplus B.V.
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