

Technical Material Data Sheet

1. Chemical Product and Company Identification

Model list of Lithium button cells:

No.	Description
42318	CR 1025 N 1-BL New Sun
23482	CR 1216 N 1-BL New Sun
23483	CR 1220 N 1-BL New Sun
23484	CR 1225 N 1-BL New Sun
23485	CR 1616 N 1-BL New Sun
23486	CR 1620 N 1-BL New Sun
23589	CR 1632 N 1-BL New Sun
23487	CR 2016 N 1-BL New Sun
23488	CR 2025 N 1-BL New Sun
78703	CR 2025 N IVP New Sun
23489	CR 2032 N 1-BL New Sun
54038	CR 2032 N 5-BL New Sun
23990	CR 2032 N LP IVP New Sun (CR2032-1GU)
23991	CR 2032 N SP IVP New Sun (CR2032-1GV)
23491	CR 2330 N 1-BL New Sun
23590	CR 2354 N 1-BL New Sun
23492	CR 2430 N 1-BL New Sun
23987	CR 2430 N IVP New Sun
78611	CR 2450 N 1-BL New Sun
23982	CR 2450 N LP IVP New Sun (CR2450-1GU)
23983	CR 2450 N SP IVP New Sun (CR2450-1GV)
43805	CR 2477 N LP IVP New Sun (CR2477-1GU)
23591	CR 2477 N 1-BL New Sun

Item: Mobile phone battery for Samsung Galaxy S4 (i9500)

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2. Composition / Information on Ingredient

Cell type	Manganese dioxide (MnO ₂) %	Graphite (C) %	Teflon (PTFE) %	Plastic (pp) %	Stainless Steel %	Metal Lithium* %	Propylene Carbonate (PC) %	Dimethoxyethane* (DME) %	Lithium Perchlorate (LiClO ₄) %
CAS No.	1313-13-9	7782-42-5	9002-84-0	219859-83-3	65997-19-5	7439-93-2	24936-68-3	110-71-4	7791-03-9
CR1025	24,1	1,1	1,7	5,1	57,9	1,4	2,7	1	0,7
CR1216	14,5	0,6	1	3,6	72	1,1	2,3	0,8	0,6
CR1220	21	0,9	1,5	3,9	63,6	1,5	2,1	0,8	0,6
CR1225	22,8	1	1,6	4,8	56,9	1,7	3,7	1,4	0,8
CR1530	31,8	1,4	2,2	4,7	49	2,1	2,5	0,9	0,7
CR1616	16,7	0,7	1,2	3,5	68,8	1,4	2,4	0,9	0,6
CR1620	20,6	0,9	1,4	4	63,1	1,7	2,5	0,9	0,7
CR1632	28,5	1,2	2	4,8	52,8	2,1	2,6	0,9	0,7
CR2016	19	0,8	1,3	3,6	66,9	1,2	2,1	0,8	0,6
CR2025	22,4	1	1,6	3,1	61,6	1,9	2,6	0,9	0,7
CR2032	27,7	1,2	1,9	3,6	53,8	2,2	2,9	1,1	0,8
CR2320	18	0,8	1,3	3,7	68	1,5	2,1	0,8	0,6
CR2325	24	1,1	1,7	2,9	59,9	1,9	2,7	1	0,7
CR2330	26	1,1	1,8	3,9	56,8	1,9	2,6	1	0,7
CR2335	30	1,3	2,1	3,3	52,1	2,2	2,6	1	0,7
CR2354	33,5	1,5	2,3	2,3	46,4	2,4	3,7	1,3	0,8
CR2412	18	0,8	1,3	3,7	69,8	1	2	0,8	0,6
CR2430	25,8	1,1	1,8	3,9	55,4	2	3,2	1,2	0,7
CR2450	33,9	1,5	2,4	3,9	46	2,4	2,9	1,2	0,8
CR2450C	32,1	1,4	2,2	2,7	47,5	2,6	3,7	1,3	0,8
CR2477	39	1,7	2,7	3,4	39,8	3,2	2,9	1,1	0,8
CR3032	30,2	1,3	2,1	2,8	51,3	2,4	3,1	1,1	0,8

3. Hazards Identification

Health Hazards (Acute and Chronic)

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

Signs/Symptoms of Exposure

A shorted lithium battery can cause thermal and chemical burns upon contact with the skin. May be a reproductive hazard.

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4. First Aid Measures

Route(s) of Entry: Not Applicable under normal use

Carcinogenicity: - Electrolyte: No
- Lithium Metal / Manganese Dioxide: No

Symptoms of Exposure: - Electrolyte: Contact with eyes, nose or skin will not cause irritation and skin burns, because electrolyte is not corrosive;

Emergency and First Aid Procedures:

- Contact with Electrolyte: Just wipe up with dry cloth then wash it with water;

- If swallowed: To prevent to be swallowed by children accidentally, if so, contact a physician immediately.

5. Fire Fighting Measures

Flash Point: PC 177°C; DME 4.5°C; Other Material Non-Flammable

Flammable Limits: Hydrogen Gas

Extinguishing Media: Portable ABC Dry Powder Fire Extinguisher, sand.

Unusual Fire & Explosion: No

Do not deposit of battery in fire may explode: No

Do not short-circuit battery may arise burn: No

Note: Few gas (H₂) may be generated during the battery storing, but will not arise burning or explosion.

Warning: Never recharge/short-circuit/disassemble. Never dispose in fire or expose close to a heat generating area. Never expose battery to strong impact because there is a danger of combustion or explosion.

6. Accidental Release Measures

Items Storage conditions			Items Storage period	Rate of occurrence of leakage (%)	Remarks
			N	30 days	
Leakage resistance	High temperature, high humidity	Temperature 45°C, humidity 93%RH	50	0	By visual means (x10)
		Temperature 60°C, humidity 93%RH			
	Temperature cycle	Temperature -30°C~+60°C (5h/cycle)(42times)	45		
	High temperature	60°C			
	Low temperature	-30°C			
	Room temperature	20±5°C, 65±20%RH (1year)	60		
	Over discharge	After discharging at room temperature until 0.1V	9		

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Steps to be taken in case Material is Released or Spilled

If the battery material is released, removed personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the batteries to cool and vapors. Remove spilled liquid with absorbent and incinerate.

Waste Disposal Method

It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local, state, and federal requirement. Consult state environmental protection agency and/or federal EPA.

7. Handling and Storage

General

The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids. Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

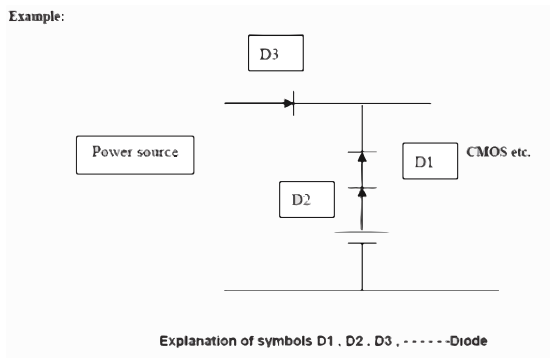
Precautions to be take in handling and storing

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods. Do not place the cell or battery near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery life and degrade performance. Store in cool place (temperature: -20~+60 °C, humidity: 45-75 %).

Precautions when using Coin type Manganese Dioxide Lithium batteries A.

Coin type Manganese Dioxide Lithium battery is a primary battery and cannot be charged.

- 1) When used in memory back up circuit, to avoid a current flow from the main power source to the battery circuit, a blocking diode which prevents reverse current flow should be used.
(Refer to the following figure)
- 2) Low current leakage type diodes should be used. When choosing a diode, the total electric charge by reverse current leakage should be kept at 1~2% of the nominal capacity.
- 3) When using batteries, if you have any questions about detailed matters, including power backup specification, please contact Wentronic GmbH.



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8. 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 irritation. 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 inorganic dusts.

Special clothing: Robber gloves.

9. Physical and Chemical Properties

Nominal Voltage: 3.0 V

Rated Capacity: 25-950 mAh (varies on model – see list under section 14.)

10. Stability and Reactivity

Stability Stable

Conditions to Avoid

- Lithium Metal

Contact with water will occur to reaction, reacts violently then release flammable hydrogen gas and quantity of heat, that may cause fire and explosion; Contact with air also lead to lithium metal metamorphosed.

- Electrolyte

Contact with air will increase the percentage value of water ,that will reduce the batteries storage-life and impact on discharge performance.

Hazardous Decomposition Products N/A.

Hazardous Polymerization N/A.

11. Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

12. Ecological Information

When promptly used or disposed the battery does not present environmental hazard.

When disposed, keep away from water, rain and snow.

13. Disposal Considerations

Appropriate Method of Disposal of Substances or Preparation

If batters are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of uncreated or unconsumed lithium remaining in the spent battery. The batteries must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste. Recycling of battery can be done in authorized facility, through licensed waste carrier.

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14. Transport Information

1. According to the *UN Recommendations on the Transport of Dangerous Goods* "Special Provision #188": If lithium batteries, during the transportation, avoiding to short with each other, packings of which have been protected properly and of which the content of the lithium element is below 1.0 g are considered as the safety merchandises. "Newsun" lithium-manganese dioxide batteries meet all the technical requirements items of the *UN Recommendations on the Transport of Dangerous Goods* completely.
2. All "Newsun" lithium batteries are now subject to various transportation regulations for all modes (truck, rail, sea and air) of transportation both around the world and domestic.

Packaging Information: Carton.

These cells or batteries meet the requirements specified above. Any Lithium cells or batteries subsequently repackaged or reshipped are required to meet all of the requirements specified above.

No.	Description	Voltage (V)	Capacity (Ah)	Wh
42318	CR 1025 N 1-BL New Sun	3	0,03	0,09
23482	CR 1216 N 1-BL New Sun	3	0,025	0,075
23483	CR 1220 N 1-BL New Sun	3	0,035	0,105
23484	CR 1225 N 1-BL New Sun	3	0,038	0,114
23485	CR 1616 N 1-BL New Sun	3	0,05	0,15
23486	CR 1620 N 1-BL New Sun	3	0,07	0,21
23589	CR 1632 N 1-BL New Sun	3	0,12	0,36
23487	CR 2016 N 1-BL New Sun	3	0,06	0,18
23488	CR 2025 N 1-BL New Sun	3	0,14	0,42
78703	CR 2025 N IVP New Sun	3	0,14	0,42
23489	CR 2032 N 1-BL New Sun	3	0,22	0,66
54038	CR 2032 N 5-BL New Sun	3	0,21	0,63
23990	CR 2032 N LP IVP New Sun (CR2032-1GU)	3	0,21	0,63
23991	CR 2032 N SP IVP New Sun (CR2032-1GV)	3	0,21	0,63
23491	CR 2330 N 1-BL New Sun	3	0,25	0,75
23590	CR 2354 N 1-BL New Sun	3	0,53	1,59
23492	CR 2430 N 1-BL New Sun	3	0,3	0,9
23987	CR 2430 N IVP New Sun	3	0,3	0,9
78611	CR 2450 N 1-BL New Sun	3	0,55	1,65
23982	CR 2450 N LP IVP New Sun (CR2450-1GU)	3	0,56	1,68
23983	CR 2450 N SP IVP New Sun (CR2450-1GV)	3	0,56	1,68
43805	CR 2477 N LP IVP New Sun (CR2477-1GU)	3	0,95	2,85*
23591	CR 2477 N 1-BL New Sun	3	0,95	2,85*

Note: Batteries weight in the package <2.5 kg (by air) when under 2.7 Wh per cell or battery. Batteries with >2.7 to 20 Wh should be packed no max. 8 cells per package (by air).
UN3430

The products are not subject to dangerous goods.

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15. Regulatory Information

Law Information

<<Dangerous Goods Regulation>>

<<Recommendations on the Transport of Dangerous Goods Model Regulations>>

<<International Maritime Dangerous Goods>>

<<Technical Instruction for the Safe Transport of Dangerous Goods>>

<<Classification and code of dangerous goods>>

<<Occupational Safety and Health Act>> (OSHA)

<<Toxic Substances Control Act>> (TSCA)

<<Consumer Product Safety Act>> (CPSA)

<<Federal Environmental Pollution Control Act>> (FEPCA)

<<The Oil Pollution Act>> (OPA)

<<Superfund Amendments and Reauthorization Act Title III (302/311/312/313)>> (SARA)

<<Resource Conservation and Recovery Act>> (RCRA)

<<Safety Drinking Water Act>> (CWA)

<<California Proposition 65>>

<<Code of Federal Regulation>> (CFR)

In accordance with all Federal, State and local laws.

16. Additional Information

The above information is based on the data which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the result of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.