

Types
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Voltage

: V28PX, V76PX, V301, V303, V309, V315, V317, V319, V321, V329, V335, V339 V341, V344, V346, V350, V357, V361, V362, V364, V370, V371, V373, V377, V379 V381, V384, V386, V389, V390, V391, V392, V393, V394, V395, V396, V397, V399

Chemical system

: Ag2O | KOH, NaOH | Zn

: 1.55 V; V28PX: 6.2 V

Date: 1998-05-06

1. TYPE AND WEIGHT

Cell Type	Weight (g)	Cell Type	Weight (g)
V28PX	11.1	V364	0.33
VZ6PX V76PX	2.4	V304 V370	0.33
V301	1.78	V370 V371	0.61
V303	2.33	V371 V373	0.5
V303 V309	1.08	V373 V377	0.39
V309 V315	0.4	V379	0.39
V315 V317	0.4	V379 V381	0.23
V319	0.18	V381 V384	0.69
V319 V321	0.25	V384 V386	1.78
V329	0.6	V389	1.31
V335	0.15	V390	1.32
V339	0.22	V391	0.9
V341	0.27	V392	0.69
V344	1.49	V393	1.08
V346	0.3	V394	1.04
V350	1.49	V395	0.75
V357	2.33	V396	0.55
V361	0.4	V397	0.50
V362	0.4	V399	0.75

#### 2. INGREDIENTS

		Approx. percentage (%) of total weight
Active materials*	- Silver oxide - Ag2O - Manganese dioxide - MnO2 - Zinc - Zn - Potassium hydroxide - KOH - Sodium hydroxide - NaOH	13 - 34 0 - 14 5 - 10 0 - 3 0 - 2
Main passiv materials*	- Steel - Copper - Nickel - Mercury - Plastic	26 - 57 2 - 5 1 - 13 0.2 - 0.6 2 - 7

All cell types are sealed button cells or button cell batteries, no chemical hazard will be posed as long as the cell remains in sealed condition.

#### 3. SAFETY GUIDELINE

- 3.1 Keep out of the reach of children. If swallowed, contact a physician at once.
- Do not heat. Nor dispose in fire. May burst or release toxic materials. 3.2
- Avoid forced discharge. 3.3
- Do not short circuit, may cause burns. 3.4
- 3.5 Do not charge.
- Do not solder the battery directly. 3.6
- Do not disassemble, apply excessive pressure or deform. 3.7
- Battery compartment should provide sufficient space for battery to expand in case of abuse. 3.8
- Either battery compartment or battery connector should have a design that makes it impossible 3.9 to place the battery in reverse polarity.3.10 Equipment intended for use by children should have tamper-proof battery compartment.
- 3.11 Battery of different electrochemical system, grades, or brands should not be mixed.
   3.12 Battery disposal method should be in accordance with local and state regulations.

Prepared by : Dr. Ermisch	Approved by : Dr.Holl



V4034PX, V72PX, V74PX, V3GA, V8GA, V10GA, V12GA, V13GA, V23GA, V625L :

Chemical system

Types

: MnO2 | KOH, NaOH | Zn

Date: 1998-05-06

1. TYPE, VOLTAGE, CAPACITY AND WEIGHT

Cell Type	Voltage (V)	Weight (g)
V4034PX	6.0	10.4
V72PX	22.5	39.0
V74PX	15.0	14.0
V3GA	1.5	0.6
V8GA	1.5	0.8
V10GA	1.5	1.1
V12GA	1.5	1.6
V13GA	1.5	1.8
V23GA	12.0	7.5
V625U	1.5	3.3

## 2. INGREDIENTS

		Approx. percentage (%) of total weight
Active materials*	- Manganese dioxide - MnO2 - Zinc - Zn - Potassium hydroxide - KOH - Sodium hydroxide - NaOH	14 - 30 5 - 11 2 - 4 0- 0.4
Main passiv materials*	- Steel - Copper - Nickel - Mercury - Plastic	40 - 60 2 - 6 1 - 3 0.2 - 0.5 2 - 14

All cell types are sealed button cells or button cell batteries, no chemical hazard will be posed as long as the cell remains in sealed condition

#### 3. SAFETY GUIDELINE

- 3.1 Keep out of the reach of children. If swallowed, contact a physician at once
- 3.2 Do not heat. Nor dispose in fire. May burst or release toxic materials
- 3.3 Avoid forced discharge.
- 3.4 Do not short circuit, may cause burns.
- 3.5 Do not charge.
- 3.6 Do not solder the battery directly
  3.7 Do not disassemble, apply excessive pressure or deform
- 3.8 Battery compartment should provide sufficient space for battery to expand in case of abuse 3.9 Either battery compartment or battery connector should have a design that makes it impossible
- to place the battery in reverse polarity
- 3.10 Equipment intended for use by children should have tamper-proof battery compartment
- 3.11 Battery of different electrochemical system, grades, or brands should not be mixed
- 3.12 Battery disposal method should be in accordance with local and state regulations

Prepared by : Dr. Ermisch

Approved by : Dr.Holl



Types
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:	V5AT, V10AT, V13AT, V 312AT, V675AT

Chemical system

: Air Cathode | KOH | Zn

: 1.4V

Date: 1998-05-06

Voltage

### 1. TYPE, CAPACITY AND WEIGHT

Cell Type	Weight (g)	
V5AT	0.19	
V10AT	0.30	
V13AT	0.83	
V312AT	0.58	
V675AT	1.85	

### 2. INGREDIENTS

		Approx. percentage (%) of total weight
Active materials*	- Catalyst - Zinc - Zn - Potassium hydroxide - KOH	1 - 3 24 - 41 2 - 4
Main passiv materials*	- Steel - Copper - Nickel - Mercury - Plastic	29 - 50 2 - 4 2 - 6 0.8 - 1.4 4 - 7

\* All cell types are sealed button cells, no chemical hazard will be posed as long as the cell remains in sealed condition.

### 3. SAFETY GUIDELINE

- 3.1 Keep out of the reach of children. If swallowed, contact a physician at once.
- Do not heat. Nor dispose in fire. May burst or release toxic materials. 3.2

  - 3.3 Avoid forced discharge.3.4 Do not short circuit, may cause burns.3.5 Do not charge.

  - 3.6 Do not solder the battery directly.
  - 3.7 Do not disassemble, apply excessive pressure or deform.
  - 3.8 Battery compartment should provide sufficient space for battery to expand in case of abuse.
  - Either battery compartment or battery connector should have a design that makes it impossible 3.9 to place the battery comparison of battery connector critical nation a design matching of the place the battery in reverse polarity.3.10 Equipment intended for use by children should have tamper-proof battery compartment.

  - 3.11 Battery of different electrochemical system, grades, or brands should not be mixed.
  - 3.12 Battery disposal method should be in accordance with local and state regulations.

Prepared by : Dr. Ermisch

Approved by : Dr.Holl



Types

Chemical system

: CR1216, CR1220, CR1616, CR1620, CR2016, CR2025, CR2032, CR2320, CR243( CR2450, CR1/3N, V28PXL, CR1/2AA, CR2/3AA, CRAA, CR2/3A, CR2NF : MnO2 | DME, PC, LiClO4 | Li Date: 1998-05-06

1. TYPE, VOLTAGE, CAPACITY AND WEIGHT

Cell Type	Voltage (V)	Weight (g)
CR1216	3.0	0.7
CR1220	3.0	0.8
CR1616	3.0	1.2
CR1620	3.0	1.2
CR2016	3.0	1.8
CR2025	3.0	2.5
CR2032	3.0	3.0
CR2320	3.0	2.9
CR2430	3.0	4.0
CR2450	3.0	6.2
CR1/3N	3.0	3.0
V28PXL	6.0	8.8
CR1/2AA	3.0	11.5
CR2/3AA	3.0	15.0
CRAA	3.0	21.5
CR2/3A	3.0	17.0
CR2NP	3.0	13.0

## 2. INGREDIENTS

		Approx. percentage (%) of total weight
Active materials*	- Manganese dioxide - MnO2 - Lithium - Li - Propylene carbonate - PC - 1.2 Dimethoxiethan - DME - Lithium perchlorate - LiClO4	13 - 40 1 - 3 3 - 9 1 - 5 0.3- 1.5
Main passiv materials*	- Steel - Plastic	33 - 74 3 - 10

\* All cell types are sealed button cells, cylindrical cells or button cell batteries, no chemical hazard will be posed as long as the cell remains in sealed condition

#### 3. SAFETY GUIDELINE

- Keep out of the reach of children. If swallowed, contact a physician at once Do not heat. Nor dispose in fire. May burst or release toxic materials 3.1
- 3.2
  - 3.3 Avoid forced discharge.
  - 3.4 Do not short circuit, may cause burns. 3.5 Do not charge.

  - 3.6 Do not solder the battery directly

  - 3.7 Do not disassemble, apply excessive pressure or deform
    3.8 Battery compartment should provide sufficient space for battery to expand in case of abuse
  - Either battery compartment or battery connector should have a design that makes it impossible 3.9 to place the battery in reverse polarity
  - 3.10 Equipment intended for use by children should have tamper-proof battery compartment
  - 3.11 Battery of different electrochemical system, grades, or brands should not be mixed 3.12 Battery disposal method should be in accordance with local and state regulations

Prepared by : Dr. Ermisch Approved by : Dr.Holl



## PRELIMINARY MATERIAL DATA SHEET

Туре	Lithium Flat Prismatic Cell - LFP 7 and LFP 25			
Chemical system	: MnO2   Carbon acid	ester, LiClO4   Li		Date: 1999-08-04
1. TYPE, VOLTAGE AND WEIGHT				
Cell Type	Order-No.	Voltage (V)	Weight (g)	
LFP 7	6804	3.0	0,30	
LFP25	6803	3,0	0,50	
2. INGREDIENTS				
[			Approx. percentage (%)	
			of total weight	
Active materials*	- Manganese dioxic - Lithium - Solution of electro		22 3 11	
Main passiv materials*	- Copper - Aluminium - Plastic		37 6 19	
	o chemical hazard will remains in sealed condi			
3. SAFETY GUIDELINE				
<ul> <li>3.3 Avoid forced di</li> <li>3.4 Do not short ci</li> <li>3.5 Do not charge.</li> <li>3.6 Do not solder t</li> <li>3.7 Do not disasser</li> <li>3.8 Avoid to place</li> </ul>	ot dispose in fire. May bi scharge. rcuit. he battery directly. nble, apply excessive pi the battery in reverse pi	ressure or deform. olarity.		
Prepared by : Dr. Ermisch		Approved by	y : Dr. Holl	



Types	:	V15H, V40H, V80H, V65HT, V110HT, V150H, V20	0H, V250H, CP300H, V300H, V350H
Chemical system	:	NiOOH   KOH   MH - Rechargeable	Date: 1999

Date: 1999-03-22

Voltage

: 1.2V

## 1. TYPE, CAPACITY AND WEIGHT

Cell Type	Typical Capacity (mAh)	Weight (g)
V15H	16	1,3
V40H	43	1,7
V80H	80	4
V65HT	70	4
V110HT	120	6
V150H	150	6
V200H	220	7
V250H	250	10
CP300H	300	11
V300H	320	12
V350H	380	13

## 2. INGREDIENTS

		Approx. percentage (%) of total weight
Active materials*	- Nickel hydroxide - Ni(OH)2 - Hydrogen storage mischmetal alloy - Potassium hydroxide - KOH	10 10 - 11 8
Passive materials*	- Steel - Metallic nickel - Plastic	40 - 50 20 - 25 3

All cell types are sealed button cells, no chemical hazard will be posed as long as the cell remains in sealed condition.

## 3. SAFETY GUIDELINE

- Keep out of the reach of children. If swallowed, contact a physician at once. 3.1
- Do not incinerate or mutilate, may burst or release toxic materials. 3.2
- Do not short circuit, may cause burns. 33
- Do not solder the battery directly. 3.4
- 3.5 Restrict charging current and time to the recommended value. Observe charging temperature: 0 to +65°C. 3.6
- Battery compartment should provide sufficient space for battery to expand in case of abuse. 3.7
- Either battery compartment or battery connector should have a design that makes it impossible 3.8
- to place the battery in reverse polarity.
- Equipment intended for use by children should have tamper-proof battery compartment. 3.9
- 3.10 Battery of different electrochemical system, grades, or brands should not be mixed.
- 3.11 Battery disposal method should be in accordance with local and state regulations.

4. V15H, V40H, V150H, V250H, V300H and CP300H are UL recognized components: category BBET2, file no. MH13654.

Prepared by : E Pytlik

Approved by : M Kilb



Types	: V400HR, V450HR	
Chemical system	: NiMH-Rechargeable	Date: 1999-03-02
Voltage	: 1.2V	

### 1. TYPE, CAPACITY AND WEIGHT

Cell Type	Typical Capacity (mAh)		Weight (g)
V400HR	420	14	
V450HR	460	14,5	
V20HR	22	1,1	

## 2. INGREDIENTS

		Approx. percentage (%) of total weight
Active materials*	- Nickel hydroxide - Ni(OH)2 - Hydrogen storage mischmetal alloy - Potassium hydroxide - KOH (32%)	10 10 - 11 8
Passive materials*	- Steel - Metallic nickel - Plastic	40 - 50 20 - 25 3

\* All cell types are sealed button cells, no chemical hazard will be posed as long as the cel remains in sealed condition.

## 3. SAFETY GUIDELINE

- Keep out of the reach of children. If swallowed, contact a physician at once. 3.1
- Do not incinerate or mutilate, may burst or release toxic materials. Do not short circuit, may cause burns. 32
- 3.3

- 3.3 Do not sont circuit, may cause burns.
  3.4 Do not solder the battery directly.
  3.5 Restrict charging current and time to the recommended value.
  3.6 Observe charging temperature: 0 to +65°C.
  3.7 Battery compartment should provide sufficient space for battery to expand in case of abuse.
  3.8 Either battery compartment or battery connector should have a design that makes it impossible to place the battery to reverse nearthing. to place the battery in reverse polarity.
- Equipment intended for use by children should have tamper-proof battery compartment 3.9
- 3.10 Battery of different electrochemical system, grades, or brands should not be mixed
- 3.11 Battery disposal method should be in accordance with local and state regulations

Prepared by :Tobias Mai	Approved by :

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# PRELIMINARY MATERIAL DATA SHEET

Types		: MC 614, MC 621			
Chemical sy	stem	: LiMnO2   organ. elee	ctrolyt   Li	Date: 1999-08-03	
1. TYPE, VO	OLTAGE, AND WEI	ЭНТ			
	Cell Type	Order-No.	Voltage (V)	Weight (g)	
	MC 614	60614	3.4 - 2.0	0,18	
	MC 621	60621	3.4 - 2.0	0,24	
2. INGREDI	IENTS				
				Approx. percentage (%) of total weight	
	Active materials*	- Lithium manganese - Lithium - Organ. electrolyt	e dioxide	3 - 5 0,2 5 - 9	
	Main passiv materials*	- Steel and nickel - Plastic		80 8	
		d button cell no chemica I remains in sealed condi		osed	
3. SAFETY	<ul> <li>3.2 Do not heat. N</li> <li>3.3 Avoid forced d</li> <li>3.4 Do not short d</li> <li>3.5 Restrict chargi</li> <li>3.6 Do not solder f</li> <li>3.7 Do not disassé</li> <li>3.8 Battery compa</li> <li>3.9 Either battery do place the ba</li> <li>3.10 Equipment inte</li> <li>3.11 Battery of diffe</li> </ul>	ircuit, may cause burns. ng current and time to th the battery directly. emble, apply excessive p rtment should provide su compartment or battery c tattery in reverse polarity. ended for use by children rent electrochemical sysi	e recommended v ressure or deform ifficient space for connector should l should have tam tem, grades, or bi	kic materials. value.	possible
Prepared by	: Dr. Ermisch		Approved b	y : Dr. Holl	



# PRELIMINARY MATERIAL DATA SHEET

Туре	: Lithium Ion Polymer Flat - Series FLP			
Chemical system	Date: 1999-08-0			
1. TYPE, VOLTAGE AND WEI	GHT			
Cell Typ	e Order-No.	Voltage (V)	Weight (g)	
FLP 35741-S	0 66030	3.6	0,??	
		3,6	0,??	
2. INGREDIENTS				
			Approx. percentage (%) of total weight	
Active materials*	- Manganese dioxid - Lithium - Li metal - Solution of electrol (carbon acid ester w	yt	22 3 11	
Main passiv materials*	- Copper - Aluminium - Plastic		37 6 19	
	l, no chemical hazard will l Il remains in sealed condi			
<ul> <li>3.2 Do not heat.</li> <li>3.3 Avoid forced</li> <li>3.4 Do not short</li> <li>3.5 Do not charg</li> <li>3.6 Do not solde</li> <li>3.7 Do not disas</li> <li>3.8 Avoid to place</li> </ul>	circuit.	ressure or deforn plarity.	n.	
Prepared by : Dr. Ermisch		Approved b	by : Dr. Holl	