

Test Report

UN38.3

Name of Sample: Rechargeable Lithium-ion Battery (Assembled)
2P/LPP454261-8TH PCM PC

Consignor: Gerold Hadlik / Varta Microbattery Ellwangen

Manufacturer: Varta Microbattery

Test Report UN38.3

Name of Sample:	Rechargeable Lithium-ion Battery (Assembled) 2P/LPP454261-8TH PCM PC
Sample No.:	JT30706
	SAS2
Drawing No.:	711050-102
Nominal Voltage:	3.7V
Ampere-hour Rating:	3180mAh
Watt-hour Rating:	12Wh

Consignor:	Gerold Hadlik / Varta Microbattery Ellwangen
Manufacturer:	Varta Microbattery
Tracer:	Engineering Sample 2913S3

Test Method:	Recommendations on the Transport of Dangerous Goods, UN Manual of Tests and Criteria, Part III, subsection 38.3, Fifth Revised Edition, Amendment 1, 2011 ST/SG/AC.10/11/Rev.5/Amend.1		
Criterion:	Recommendations on the Transport of Dangerous Goods, UN Manual of Tests and Criteria, Part III, subsection 38.3, Fifth Revised Edition, Amendment 1, 2011 ST/SG/AC.10/11/Rev.5/Amend.1		
Sample Appearance:	Black Plastic Casing with latch & O-ring		
Accepted Date:	2013-08-01	Test Date	2013-08-01 — 2013-09-27
Test Items:	Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Crush, Overcharge		
Conclusion:	The Sample has passed the test items of UN38.3 Date: 2013-09-27		
Comment:	—		

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Test No.	Test Item	Standard requirement / Clause number of Standard	Test Result	Conclusion
1	Altitude Simulation	UN Manual of Test and Criteria, Section 38.3,4.1 Test T.1	Appendix T1	Passed
2	Thermal Test	UN Manual of Test and Criteria, Section 38.3,4.2 Test T.2	Appendix T2	Passed
3	Vibration Test	UN Manual of Test and Criteria, Section 38.3,4.3 Test T.3	Appendix T3	Passed
4	Shock Test	UN Manual of Test and Criteria, Section 38.3,4.4 Test T.4	Appendix T4	Passed
5	External Short Circuit	UN Manual of Test and Criteria, Section 38.3,4.5 Test T.5	Appendix T5	Passed
6	Crush	UN Manual of Test and Criteria, Section 38.3,4.6 Test T.6	Appendix T6	—
7	Overcharge	UN Manual of Test and Criteria, Section 38.3,4.7 Test T.7	Appendix T7	Passed
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Test Environment Condition		Ambient Temperature: 15°C - 25°C		

UN38.3 Test Report – Appendix T1

Test No.	1	Test Item.		Altitude Simulation				
		Before Test		After Test		Percentage (%)		Comment
Test No.	Sample Status	Weight (g)	OCV (V)	Weight (g)	OCV (V)	Mass Loss (Before -After) /Before (%)	OCV (After /Before) (%)	
01	1CYCFULL	73.61	4.10	73.59	4.09	0.02	99.8	P
02	1CYCFULL	73.69	4.09	73.68	4.09	0.02	99.9	P
03	1CYCFULL	73.71	4.09	73.69	4.09	0.02	100.0	P
04	1CYCFULL	73.57	4.09	73.55	4.09	0.02	100.0	P
05	50CYCFULL	73.59	4.18	73.59	4.17	0.00	99.9	P
06	50CYCFULL	73.66	4.18	73.66	4.18	0.00	100.0	P
07	50CYCFULL	73.77	4.18	73.77	4.18	0.00	100.0	P
08	50CYCFULL	73.55	4.18	73.55	4.18	0.00	100.0	P
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Note:

L=Leagkage, V=Venting, D=Disassembly, R=Rupture, F=Fire, P=No Leagake, No Venting, No Disassembly, No Rupture, No Fire

UN38.3 Test Report — Appendix T2

Test No.	2	Test Item.		Thermal Test				
		Before Test		After Test		Percentage (%)		Comment
Test No.	Sample Status	Weight (g)	OCV (V)	Weight (g)	OCV (V)	Mass Loss (Before -After) /Before (%)	OCV (After /Before) (%)	
01	1CYCFULL	73.59	4.09	73.60	4.12	-0.01	100.8	P
02	1CYCFULL	73.68	4.09	73.69	4.11	-0.01	100.4	P
03	1CYCFULL	73.69	4.09	73.70	4.12	-0.01	100.7	P
04	1CYCFULL	73.55	4.09	73.56	4.10	-0.01	100.2	P
05	50CYCFULL	73.59	4.17	73.58	4.12	0.01	98.7	P
06	50CYCFULL	73.66	4.18	73.66	4.11	0.00	98.4	P
07	50CYCFULL	73.77	4.18	73.75	4.11	0.02	98.2	P
08	50CYCFULL	73.55	4.18	73.53	4.10	0.02	98.2	P
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Note:

L=Leagkage, V=Venting, D=Disassembly, R=Rupture, F=Fire, P=No Leagake, No Venting, No Disassembly, No Rupture, No Fire

UN38.3 Test Report — Appendix T3

Test No.	3	Test Item.		Vibration Test				
		Before Test		After Test		Percentage (%)		Comment
Test No.	Sample Status	Weight (g)	OCV (V)	Weight (g)	OCV (V)	Mass Loss (Before -After) /Before (%)	OCV (After /Before) (%)	
01	1CYCFULL	73.60	4.12	73.67	4.11	-0.09	99.6	P
02	1CYCFULL	73.69	4.11	73.71	4.08	-0.04	99.4	P
03	1CYCFULL	73.70	4.12	73.74	4.10	-0.05	99.5	P
04	1CYCFULL	73.56	4.10	73.57	4.07	-0.01	99.2	P
05	50CYCFULL	73.58	4.12	73.59	4.11	-0.02	99.7	P
06	50CYCFULL	73.66	4.11	73.67	4.10	-0.01	99.6	P
07	50CYCFULL	73.75	4.11	73.76	4.09	-0.01	99.6	P
08	50CYCFULL	73.53	4.10	73.55	4.08	-0.02	99.5	P
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Note:

L=Leagkage, V=Venting, D=Disassembly, R=Rupture, F=Fire, P=No Leagake, No Venting, No Disassembly, No Rupture, No Fire

UN38.3 Test Report — Appendix T4

Test No.	4	Test Item.		Shock Test				
		Before Test		After Test		Percentage (%)		Comment
Test No.	Sample Status	Weight (g)	OCV (V)	Weight (g)	OCV (V)	Mass Loss (Before -After) /Before (%)	OCV (After /Before) (%)	
01	1CYCFULL	73.67	4.11	73.65	4.09	0.03	99.6	P
02	1CYCFULL	73.71	4.08	73.71	4.06	0.00	99.4	P
03	1CYCFULL	73.74	4.10	73.74	4.07	0.00	99.4	P
04	1CYCFULL	73.57	4.07	73.57	4.05	0.00	99.5	P
05	50CYCFULL	73.60	4.09	73.60	4.09	0.00	100.0	P
06	50CYCFULL	73.68	4.08	73.68	4.08	0.00	100.0	P
07	50CYCFULL	73.78	4.06	73.77	4.06	0.00	100.0	P
08	50CYCFULL	73.55	4.06	73.55	4.06	0.00	100.0	P
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Note:

L=Leagkage, V=Venting, D=Disassembly, R=Rupture, F=Fire, P=No Leagake, No Venting, No Disassembly, No Rupture, No Fire

UN38.3 Test Report — Appendix T5

Test No.	5	Test Item.	External Short circuit Test
Test No.	Sample Status	Max External Temperature (°C)	Comment
01	1CYCFULL	56.1	P
02	1CYCFULL	56.0	P
03	1CYCFULL	60.9	P
04	1CYCFULL	56.1	P
05	50CYCFULL	55.7	P
06	50CYCFULL	55.7	P
07	50CYCFULL	55.7	P
08	50CYCFULL	55.6	P
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Note:
L=Leakage, V=Venting, D=Disassembly, R=Rupture, F=Fire, P=No Disassembly, No Rupture & No Fire

UN38.3 Test Report — Appendix T7

Test No.	7		Test Item.	Over Charge Test				
		Before Test		After Test				Comment
Test No.	Sample Status	Weight (g)	OCV (V)	Weight (g)	OCV (V)			
09	1CYCFULL	73.88	4.09	73.89	4.15			P
10	1CYCFULL	73.77	4.09	73.78	4.15			P
11	1CYCFULL	73.79	4.09	73.80	4.15			P
12	1CYCFULL	73.83	4.09	73.85	4.15			P
13	50CYCFULL	73.75	4.17	73.77	4.15			P
14	50CYCFULL	73.98	4.16	73.99	4.14			P
15	50CYCFULL	73.88	4.17	73.89	4.16			P
16	50CYCFULL	73.91	4.17	73.92	4.15			P
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Note:
L=Leagkage, V=Venting, D=Disassembly, R=Rupture, F=Fire, P=No Disassembly, No Fire

