



## Product Specification

1. Scope : This specification is applicable to the following product : AA MJ Sanyo Super ( Blue ) supplied .
2. Type : Size AA (R6) / UM - 3 : Sanyo Super ( Blue ).
3. Nominal Voltage : 1.5 V
4. Figure and Dimensions : See : SPE No. 043.
5. Standard Weight :  $18 \pm 0.6$  grams
6. Terminal : + : Cap Terminal, - : Base Terminal.
7. Chemical properties : No Mercury / cadmium addition to the battery
- Maximum content ( % wt ) :

Cd	: 5 ppm
Hg	: 5 ppm
Pb	: 1650 ppm

### 8. Quality Characteristics

- 8.1. Dimensions : Dimensions are shown in SPE No. 043.
- 8.2. Terminal : There shall be no rust or deformation that occurs troubles practically.
- 8.3. Appearance : There shall be no rust or deformation or scratch that occurs troubles practically.
- 8.4. Electrical Characteristics.

( Table 1 )

Item		Requirement		Test Condition	
Open Circuit ( V )	Initial	Over 1.56	Temp : $20 \pm 2^{\circ}\text{C}$ RH : $65 \pm 20\%$		
	After 12 months	Over 1.50			
Closed Circuit ( V )	Initial	Over 1.40	Temp : $20 \pm 2^{\circ}\text{C}$ RH : $65 \pm 20\%$ Load : $10\ \Omega$		
	After 12 months	Over 1.30			
Service Life (H)	Discharge at $10\ \Omega$	Initial	Over 3.2	Temp : $20 \pm 2^{\circ}\text{C}$ RH : $65 \pm 20\%$ End Voltage : 1.0V Daily Period : 1h	
		After 12 months	Over 2.6		

### 8.5. Leakage Resistability

( Table 2 )

Item	Rest Condition	Requirement
High Temperature Leakage Test	Temp. : $45 \pm 2^{\circ}\text{C}$ RH : Under 70 % Storage Period : 1 month	There shall be no deformation in excess over MAX. dimensions shown in product dimensions and no visible leakage.
Over Discharge Leakage Test	Not Available	

### 9. Test

#### 9.1. Storage and Test Conditions

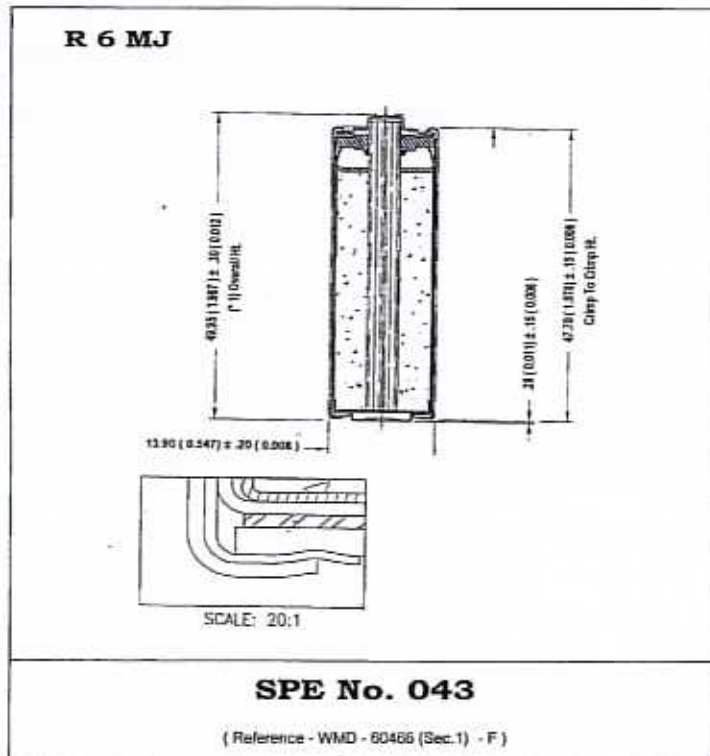
- (1) Storage Condition  
Storage condition shall be kept at  $20 \pm 2^{\circ}\text{C}$  and at  $65 \pm 20\%$ RH.
- (2) Test Condition  
Test shall be conducted at  $20 \pm 2^{\circ}\text{C}$  and at  $65 \pm 20\%$ RH.

#### 9.2. Instruments and Devices

- (1) Voltmeters  
Voltmeters used model CP 1706.2 supplied by Newport Instrumentation of Cleveland with accuracy = 0,5 mv.
- (2) Load Resistance  
The load resistance shall include all resistances in external circuit, and its tolerance shall be  $\pm 0.5\%$ .
- (3) Calipers  
Caliper used with accuracy 0,002" (resolution : 0,005")

9.3. Test Methods

- (1) Dimensions  
Measurement shall be made with calipers or measuring device having equal or better precision specified in 8.2 (3).
- (2) Terminals  
Visually
- (3) Appearance  
Visually
- (4) Open-Circuit Voltage  
Shall be measured with a volt meter specified in 9.2 (1), after the batteries have been leaving at  $20 \pm 2^\circ \text{C}$  for 8 hours minimum.
- (5) Closed-Circuit Voltage  
Shall be measured with a volt meter specified in 9.2 (1), under the load specified in table 1, after the batteries have been leaving at  $20 \pm 2^\circ \text{C}$  for 8 hours minimum.
- (6) Service Life  
The test batteries shall be leave at  $20 \pm 2^\circ \text{C}$  and  $65 \pm 20\% \text{RH}$ , for 8 hours minimum and then shall be discharged continuously as specified in table 1.
- (7) Overdischarge Leakage Test  
N/A.
- (8) High Temperature Leakage Test  
The test batteries shall be started at  $45 \pm 2^\circ \text{C}$  and at 45-60%RH, for up to 3 months, and shall then be inspected for leakage and deformation by visual.



**Product Specification**

1. Scope : This specification is applicable to the following product : AA MJ Sanyo Super ( Blue ) supplied from PT. Energizer Indonesia.
2. Type : Size AA (R6) / UM - 3 : Sanyo Super ( Blue ).
3. Nominal Voltage : 1.5 V
4. Figure and Dimensions : See : SPE No. 043.
5. Standard Weight :  $18 \pm 0.6$  grams
6. Terminal : + : Cap Terminal, - : Base Terminal.
7. Chemical properties : No Mercury / cadmium addition to the battery
- Maximum content ( % wt ) :

Cd	: 5 ppm
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**8. Quality Characteristics**

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- 8.3. Appearance : There shall be no rust or deformation or scratch that occurs troubles practically.
- 8.4. Electrical Characteristics.

( Table 1 )

Item		Requirement		Test Condition	
Open Circuit ( V )	Initial	Over 1.56	Temp	: $20 \pm 2^{\circ}\text{C}$	
	After 12 months	Over 1.50	RH	: $65 \pm 20 \%$	
Closed Circuit ( V )	Initial	Over 1.40	Temp	: $20 \pm 2^{\circ}\text{C}$	
	After 12 months	Over 1.30	RH	: $65 \pm 20 \%$	
			Load	: $10 \Omega$	
Service Life ( H )	Discharge at $10 \Omega$	Initial	Over 3.2	Temp	: $20 \pm 2^{\circ}\text{C}$
		After 12 months	Over 2.6	RH	: $65 \pm 20 \%$
				End Voltage	: 1.0V
				Daily Period	: 1h

**8.5. Leakage Resistability**

( Table 2 )

Item	Rest Condition	Requirement
High Temperature Leakage Test	Temp. : $45 \pm 2^{\circ}\text{C}$ RH : Under 70 % Storage Period : 1 month	There shall be no deformation in excess over MAX. dimensions shown in product dimensions and no visible leakage.
Over Discharge Leakage Test	Not Available	

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Test shall be conducted at  $20 \pm 2^{\circ}\text{C}$  and at  $65 \pm 20\%$ RH.

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(1) Dimensions

Measurement shall be made with calipers or measuring device having equal or better precision specified in 8.2 (3).

(2) Terminals

Visually

(3) Appearance

Visually

(4) Open-Circuit Voltage

Shall be measured with a volt meter specified in 9.2 (1), after the batteries have been leaving at  $20 \pm 2^\circ \text{C}$  for 8 hours minimum.

(5) Closed-Circuit Voltage

Shall be measured with a volt meter specified in 9.2 (1), under the load specified in table 1, after the batteries have been leaving at  $20 \pm 2^\circ \text{C}$  for 8 hours minimum.

(6) Service Life

The test batteries shall be leave at  $20 \pm 2^\circ \text{C}$  and  $65 \pm 20\% \text{RH}$ , for 8 hours minimum and then shall be discharged continuously as specified in table 1.

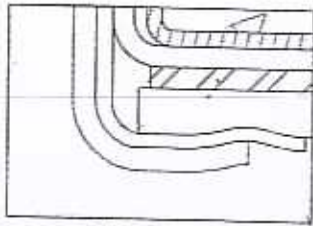
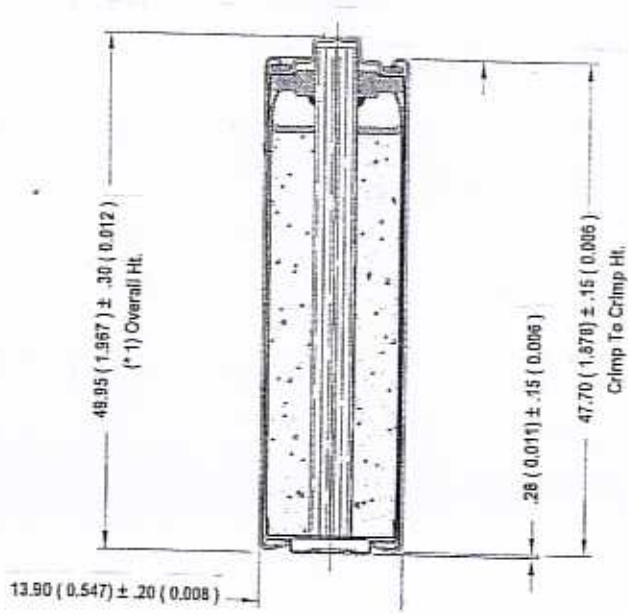
(7) Overdischarge Leakage Test

N/A.

(8) High Temperature Leakage Test

The test batteries shall be started at  $45 \pm 2^\circ \text{C}$  and at 45-60%RH, for up to 3 months, and shall then be inspected for leakage and deformation by visual.

# R 6 MJ



SCALE: 20:1

## SPE No. 043

( Reference - WMD - 60466 (Sec.1) - F )