

SLOVENSKI

**SIST EN 61951-
1:2004/OprA1:2005**

PREDSTANDARD

januar 2005

**Sekundarne celice in baterije, ki vsebujejo alkalne ali druge nekislinske
elektrolite - Prenosne ponovno polnjive zaprte posamezne celice – 1. del:
Nikelj-kadmijeve celice**

(istoveten EN 61951-1:2003/prA1:2004)

**Secondary cells and batteries containing alkaline or other non-acid electrolytes -
Portable sealed rechargeable single cells - Part 1 Nickel-cadmium**

ICS 29.220.30

Referenčna številka
SIST EN 61951-1:2004/OprA1:2005(en)



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Titre du CE/SC: Accumulateurs alcalins et autres accumulateurs à électrolyte non acide		TC/SC Title: Secondary cells and batteries containing alkaline or other non-acid electrolytes	
Secretary: Pierre Fougère Secrétaire:			
Also of interest to the following committees Intéresse également les comités suivants TC 35, SC34D		Supersedes document Remplace le document 21A/398/MCR and 21A/399/DC	
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Titre : Projet d'amendement 1 à la CEI 61951-1
Accumulateurs individuels portables étanches -
Partie 1: Nickel-cadmium

Title : Draft amendment 1 to IEC 61951-1:
Portable sealed rechargeable single cells -
Part 1 Nickel-cadmium

Note d'introduction

La demande du TC 34D (Luminaires) concernant les éléments destinés à fonctionner à haute température a été formulée dans le document 21A/398/MCR, diffusé aux Comités Nationaux le 16 Janvier 2004. Comme précisé dans le document 21A/399/DC, un projet d'amendement a été préparé et examiné par les experts du WG2 au cours de la réunion tenue à Berlin le 11 Mai 2004.

Introductory note

The request from TC 34D (Luminaires) concerning cells for operation at elevated temperatures was expressed in 21A/398/MCR circulated to National Committees on January 16, 2004. As detailed in 21A/399/DC, a draft of amendment 1 was prepared and reviewed by the experts of WG2 during the meeting held in Berlin on May 11, 2004.

ATTENTION

**CDV soumis en parallèle au vote (CEI)
et à l'enquête (CENELEC)**

ATTENTION

Parallel IEC CDV/CENELEC Enquiry

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FOREWORD

This amendment has been prepared by subcommittee 21A: Secondary cells and batteries containing alkaline or other non-acid electrolytes, of IEC technical committee 21: Secondary cells and batteries.

This first amendment allows differentiating cells for operation at temperatures of up to 40 °C and cells for operation at temperatures of up to 50 °C.

The text of this amendment is based on the following documents:

FDIS	Report on voting
21A/XX/FDIS	21A/XX/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2008-06. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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CONTENTS

Replace title of clause 7.6.3 by the following:

7.6.3 LT, MT, HT, LU, MU or HU cylindrical cells

Page 5

LIST OF TABLES

Repace table 18 by the following:

Table 18A – Permanent charge endurance for LT, MT or HT cylindrical cells

Table 18B – Permanent charge endurance for LU, MU or HU cylindrical cells

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5.1.2 Cylindrical cells

Replace the paragraph after the note by the following:

When a cell is intended for permanent charge at elevated temperatures, typically up to 40 °C, a letter "T" is placed after the letter L, M, H or X.

When a cell is intended for permanent charge at elevated temperatures, typically up to 50 °C, a letter "U" is placed after the letter L, M, H or X.

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7.2.1 Discharge performance at 20 °C

Replace table 6 by the following:

Table 6 – Discharge performance at 20 °C for cylindrical cells

Discharge conditions		Minimum discharge duration h/min			
Rate of constant current A	Final voltage V	Cell designation			
		L/LT/LU	M/MT/MU	H/HT/HU	X
0,2 I_t	1,0	5 h	5 h	5 h	5 h
1,0 I_t	0,9	–	42 min	48 min	54 min
5,0 I_t	0,8	–	–	6 min	9 min
10,0 I_t	0,7	–	–	–	4 min

a Five cycles are permitted for this test. The test shall be terminated at the end of the first cycle which meets the requirement.

b Prior to the 5,0 I_t A and 10,0 I_t A tests, a conditioning cycle may be included if necessary. This cycle shall consist of charging at 0,1 I_t A in accordance with 7.1 and discharging at 0,2 I_t A, at an ambient temperature of 20 °C ± 5 °C, according to 7.2.1.

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7.2.2 Discharge performance at –18 °C

Replace table 9 by the following:

Table 9 – Discharge performance at –18 °C for cylindrical cells

Discharge conditions		Minimum discharge duration h/min					
Rate of constant current A	Final voltage V	Cell designation					
		L/LT/LU	M	MT/MU	H	HT/HU	X
0,2 I_t	1,0	2 h	3 h	2 h	3 h	2 h	4 h
1,0 I_t	0,9	–	15 min	10 min	30 min	20 min	36 min
2,0 I_t ^a	0,8	–	–	–	9 min	6 min	13 min
3,0 I_t ^a	0,8	–	–	–	–	–	7 min

^a Prior to the 2,0 I_t A and 3,0 I_t A tests, a conditioning cycle may be included if necessary. This cycle consists of charging at 0,1 I_t A in accordance with 7.1 and discharging at 0,2 I_t A at an ambient temperature of 20 °C ± 5 °C, according to 7.2.1.

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7.4.1.1 Small prismatic and cylindrical cells (Endurance in cycles)

Replace the last line of this sub-clause by the following

- 50 for LT/LU, MT/MU or HT/HU

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7.4.2.3 LT, MT or HT cylindrical cells

Replace clause 7.4.2.3 by the following:

7.4.2.3 LT, MT or HT cylindrical cells

The permanent charge endurance test shall be performed in three steps according to the conditions specified in Table 18A.

It consists of:

- a charge acceptance test at +40 °C;
- an ageing period of six months at +70 °C;
- a final charge acceptance test to check the cell's performance after ageing.

NOTE The six months ageing period and the temperature of +70 °C have been selected to simulate four years of permanent charge operation at +40 °C.

Prior to this test, the cell shall be discharged at $0,2 I_t$ A at $20\text{ °C} \pm 5\text{ °C}$ to a final voltage of 1,0 V and stored, in an ambient temperature of $+40\text{ °C} \pm 2\text{ °C}$, for not less than 16 h and not more than 24 h.

The cell shall then be charged and discharged at constant current under the conditions specified in Table 18A while maintained in an ambient temperature of $+40\text{ °C} \pm 2\text{ °C}$ or $+70\text{ °C} \pm 2\text{ °C}$ respectively as appropriate.

The discharge conditions A or B may be chosen to suit the user's requirements. The discharge is carried out immediately on completion of charging.

After performing the first charge acceptance test at +40 °C the cell is stored, in an ambient temperature of $+70\text{ °C} \pm 2\text{ °C}$, for not less than 16 h and not more than 24 h.

During the ageing period of six months at +70 °C, precautions shall be taken to prevent the cell-case temperature from rising above +75 °C by providing a forced air draught, if necessary.

NOTE Actual cell case temperature, not the ambient temperature, determines cell performance.

The discharge duration of the three cycles at +70 °C shall be recorded. Leakage of electrolyte shall not occur during this test.

After completion of the ageing period, the cell shall be stored, in an ambient temperature of $+40\text{ °C} \pm 2\text{ °C}$ for not less than 16 h and not more than 24 h. The three cycles at +40 °C of the initial charge acceptance test are then repeated using the conditions specified in Table 18A. The duration of the discharge shall be not less than the values specified in Table 18A.

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Table 18

Rename table 18 in “Table 18A”

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Create a new clause: 7.4.2.4 LU, MU or HU cylindrical cells and create a new Table 18B as follows:

7.4.2.4 LU, MU or HU cylindrical cells

The permanent charge endurance test shall be performed in three steps according to the conditions specified in Table 18B.

It consists of:

- a charge acceptance test at +50 °C;
- an ageing period of twelve months at +70 °C;
- a final charge acceptance test to check the cell's performance after ageing.

NOTE The twelve months ageing period and the temperature of +70 °C have been selected to simulate four years of permanent charge operation at +50 °C.

Prior to this test, the cell shall be discharged at $0,2 I_t$ A at $20\text{ °C} \pm 5\text{ °C}$ to a final voltage of 1,0 V and stored, in an ambient temperature of $+50\text{ °C} \pm 2\text{ °C}$, for not less than 16 h and not more than 24 h.

The cell shall then be charged and discharged at constant current under the conditions specified in Table 18B while maintained in an ambient temperature of $+50\text{ °C} \pm 2\text{ °C}$ or $+70\text{ °C} \pm 2\text{ °C}$ respectively as appropriate.

The discharge conditions A or B may be chosen to suit the user's requirements. The discharge is carried out immediately on completion of charging.

After performing the first charge acceptance test at +50 °C the cell is stored, in an ambient temperature of $+70\text{ °C} \pm 2\text{ °C}$, for not less than 16 h and not more than 24 h.

During the ageing period of twelve months at +70 °C, precautions shall be taken to prevent the cell-case temperature from rising above +75 °C by providing a forced air draught, if necessary.

NOTE Actual cell case temperature, not the ambient temperature, determines cell performance.

The discharge duration of the three cycles at +70 °C shall be recorded. Leakage of electrolyte shall not occur during this test.

After completion of the ageing period, the cell shall be stored, in an ambient temperature of $+50\text{ °C} \pm 2\text{ °C}$ for not less than 16 h and not more than 24 h. The three cycles at +50 °C of the initial charge acceptance test are then repeated using the conditions specified in Table 18B. The duration of the discharge shall be not less than the values specified in Table 18B.

Table 18B – Permanent charge endurance for LU, MU, or HU cylindrical cells

Cycle number	Ambient temperature	Charge	Discharge A or B ^a	Minimum discharge duration
1	+50 °C ± 2 °C	0,05 I_t A for 48 h	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	No requirement
2		0,05 I_t A for 24 h	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	No requirement 3 h 45 min
3		0,05 I_t A for 24 h	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	42 min 3 h 45 min 42 min
4	+70 °C ± 2 °C	0,05 I_t A for 120 days	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	No requirement
5		0,05 I_t A for 120 days	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	
6		0,05 I_t A for 120 days	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	
7	+50 °C ± 2 °C	0,05 I_t A for 48 h	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	No requirement
8		0,05 I_t A for 24 h	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	No requirement 2 h 30 min
9		0,05 I_t A for 24 h	A: 0,2 I_t A to 1,0 V or B: 1,0 I_t A to 1,0 V	24 min 2 h 30 min 24 min
^a A: for LU, MU or HU cells. B: for MU or HU cells only.				

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7.6.3 LT, MT or HT cylindrical cells (overcharge)

Replace the title of this clause and table 19 by the following:

7.6.3 LT/LU, MT/LU or HT/HU cylindrical cells

Table 19 – Overcharge at 0 °C

Charge	Discharge A ^a	Discharge B ^a
	LT/LU, MT/MU, HT/HU cells	MT/MU, HT/HU cells
0,05 I_t A for 28 days	0,2 I_t A to 1,0 V	1,0 I_t A to 1,0 V
^a The discharge is carried out immediately on completion of the charging.		