

Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

13 June 2024

Sixty-fourth session

Geneva, 24 June-3 July 2024

Item 4 (b) of the provisional agenda

Electric storage systems:

Hazard-based system for classification
of lithium batteries

New identification system – lithium cells and batteries – additions to the Dangerous Goods List and special provisions

Transmitted by the expert from the United Kingdom

I. Introduction

1. Within document ST/SG/AC.10/C.3/2024/20 the expert from the United Kingdom makes the case for greater specificity with regards to the identification of lithium batteries and cells. The principle behind this proposal is to create a more user-friendly approach to battery identification facilitating easier compliance and enforcement and to align this area with the rest of the substances and articles within the *Model Regulations*.
2. This paper provides the details of the proposals we invite the Sub-Committee to consider.

II. Hazard based system for classification of lithium batteries

3. As commented within document ST/SG/AC.10/C.3/2024/20, experts from the United Kingdom have been involved with the informal working group (IWG) on the hazard-based classification of lithium batteries and cells. The work of the IWG is contained within document ST/SG/AC.10/C.3/2024/13. Whilst the IWG's proposed testing and classification system is supported in principle, this paper makes further proposals relative to identification, proposing additions to the Dangerous Goods List for cells and batteries tested under the new T9-T13 tests. The expert from the United Kingdom offers these proposals now as it is considered an opportune moment in light of the new classification system.

III. Additions to the Dangerous Goods List

4. Granularity in the UN system is achieved through identification – a UN number. This affords the whole transport chain visibility of what is required and when, and includes appropriate hazard communication. It allows modal regulators to determine with precision where they see the need for a variation or special conditions for carriage and for enforcers to know what to expect. Currently, for lithium cells and batteries there is no granularity, and the IWG has only looked to the Dangerous Goods List in terms of the offering new divisions. This is an improvement but falls short of addressing the underlying problem.
5. Hidden within the existing entries for lithium batteries (UN 3090, 3091, 3480, 3481) there is a mass of detail which the reader must work through via different special provisions or packing instructions.

IV. Proposals

6. The proposals are contained within paragraphs 7 and 8 of this paper. The following should be noted:

- Existing entries (UN 3090, 3091, 3480 and 3481) are left unchanged but for the addition of ‘**4X**’ within column 3 as suggested within document ST/SG/AC.10/C.3/2024/13. This is retained for now, but there is an argument to say that because they are untested cells and batteries and are not included in the new classification scheme no division is necessary. This would need addressing in the classification text.
- No entries are included for lithium batteries packed with equipment. No other dangerous good packed with anything else has a separate UN number.
- No entries are included for damaged and defective batteries since the nature and severity of the hazard cannot be any greater than the fully charged tested classification.
- No entries are included for sodium cells and batteries; granularity means that they should be treated separately as with all other dangerous goods with different identities.
- Special Provision 188 is replaced by a limited quantity provision.
- A new UN number is included for lithium cells and batteries set for disposal.
- New numbers are included for lithium-ion cells and batteries at a reduced state of charge.
- Entries are included for solid state cells and batteries on the assumption that they can be tested in line with 38.3.5 and 38.6 *Manual of Tests and Criteria*, however text will need to be developed in due course.
- A further extension would be needed to add UN numbers for vehicles with ion and metal batteries according to classification. This could be another 16 numbers, and an additional 6 for ion reduced state of charge.
- The numbering has started at 4000 as it is easier to work with sequential numbers than 356x, 356y, etc. There is an advantage in this instance of starting the numbering at a distinct break point as the numbers would become associated with cells and batteries in the same way that all explosive entries start with a 0.

7. Amend the Dangerous Goods List in Chapter 3.2 (new text in **bold**) as follows:

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
3090	LITHIUM METAL BATTERIES (including lithium alloy batteries)	9.4X			188 230 310 376 377 384 387	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
3091	LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT (including lithium alloy batteries)	9.4X			188 230 310 360 376 377 384 387 390	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			
3480	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	9.4X			188 230 310 348 376 377 384 387	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			
3481	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)	9.4X			188 230 310 348 360 376 377 384 387 390	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			
4000	LITHIUM ION CELL (including lithium ion polymer cells)	9.4A				0	E0	P943 LP943			
4001	LITHIUM ION CELL (including lithium ion polymer cells)	9.4B				0	E0	P943 LP943			
4002	LITHIUM ION CELL (including lithium ion polymer cells)	9.4C				0	E0	P942 LP942			
4003	LITHIUM ION CELL (including lithium ion polymer cells)	9.4D				0	E0	P942 LP942			
4004	LITHIUM ION CELL (including lithium ion polymer cells)	9.4E				20Wh	E0	P941 LP941			
4005	LITHIUM ION CELL (including lithium ion polymer cells)	9.4F				20Wh	E0	P941 LP941			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
								Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4006	LITHIUM ION CELL (including lithium ion polymer cells)	9.4G				20Wh	E0	P940 LP940			
4007	LITHIUM ION CELL (including lithium ion polymer cells)	9.4H				20Wh	E0	P940 LP940			
4008	LITHIUM METAL CELL (including lithium alloy cells)	9.4A				0	E0	P943 LP943			
4009	LITHIUM METAL CELL (including lithium alloy cells)	9.4B				0	E0	P943 LP943			
4010	LITHIUM METAL CELL (including lithium alloy cells)	9.4C				0	E0	P942 LP942			
4011	LITHIUM METAL CELL (including lithium alloy cells)	9.4D				0	E0	P942 LP942			
4012	LITHIUM METAL CELL (including lithium alloy cells)	9.4E				1g	E0	P941 LP941			
4013	LITHIUM METAL CELL (including lithium alloy cells)	9.4F				1g	E0	P941 LP941			
4014	LITHIUM METAL CELL (including lithium alloy cells)	9.4G				1g	E0	P940 LP940			
4015	LITHIUM METAL CELL (including lithium alloy cells)	9.4H				1g	E0	P940 LP940			
4016	LITHIUM ION BUTTON CELL	9.4H				0	E0	P940 LP940			
4017	LITHIUM METAL BUTTON CELL (including lithium alloy)	9.4H				0	E0	P940 LP940			
4018	LITHIUM ION CELL REDUCED SOC (including lithium ion polymer cells)	9.4C			448	0	E0	P942 LP942			
4019	LITHIUM ION CELL REDUCED SOC (including lithium ion polymer cells)	9.4D			448	0	E0	P942 LP942			
4020	LITHIUM ION CELL REDUCED SOC (including lithium ion polymer cells)	9.4E			445 446 448	20Wh	E0	P941 LP941			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4021	LITHIUM ION CELL REDUCED SOC (including lithium ion polymer cells)	9.4F			445 446 448	20Wh	E0	P941 LP941			
4022	LITHIUM ION CELL REDUCED SOC (including lithium ion polymer cells)	9.4G			445 446 448	20Wh	E0	P940 LP940			
4023	LITHIUM ION CELL REDUCED SOC (including lithium ion polymer cells)	9.4H			445 446 448	20Wh	E0	P940 LP940			
4024	LITHIUM CELLS AND BATTERIES FOR DISPOSAL, (all types and categories)	9.4X			377	0	E0	P909			
4025	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4A			441	0	E0	P943 LP943			
4026	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4B			441	0	E0	P943 LP943			
4027	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4C			441	0	E0	P942 LP942			
4028	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4D			441	0	E0	P942 LP942			
4029	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4E			441	100Wh	E0	P941 LP941			
4030	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4F			441	100Wh	E0	P941 LP941			
4031	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4G			441	100Wh	E0	P940 LP940			
4032	LITHIUM ION BATTERY (including lithium ion polymer batteries)	9.4H			441	100Wh	E0	P940 LP940			
4033	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4A			441	0	E0	P943 LP943			
4034	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4B			441	0	E0	P943 LP943			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4035	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4C			441	0	E0	P942 LP942			
4036	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4D			441	0	E0	P942 LP942			
4037	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4E			441 447	2g	E0	P941 LP941			
4038	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4F			441 447	2g	E0	P941 LP941			
4039	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4G			441 447	2g	E0	P940 LP940			
4040	LITHIUM METAL BATTERY (including lithium alloy batteries)	9.4H			441 447	2g	E0	P940 LP940			
4041	LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)	9.4A			442	0	E0	P943 LP943			
4042	LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)	9.4B			442	0	E0	P943 LP943			
4043	LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)	9.4C			442	0	E0	P942 LP942			
4044	LITHIUM BATTERY CONSISTING OF LITHIUM ION AND LITHIUM METAL CELLS (including lithium alloy)	9.4D			442	0	E0	P942 LP942			
4045	LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)	9.4E			442 446 447	1.5g (metal) + 10Wh (ion)	E0	P941 LP941			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4046	LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)	9.4F			442 446 447	1.5g (metal) +	E0 10Wh (ion)	P941 LP941			
4047	LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)	9.4G			442 446 447	1.5g (metal) +	E0 10Wh (ion)	P940 LP940			
4048	LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)	9.4H			442 446 447	1.5g (metal) +	E0 10Wh (ion)	P940 LP940			
4049	LITHIUM ION BATTERY REDUCED SOC (including lithium ion polymer batteries)	9.4C			444 448		E0	P942 LP942			
4050	LITHIUM ION BATTERY REDUCED SOC (including lithium ion polymer batteries)	9.4D			444 448		E0	P942 LP942			
4051	LITHIUM ION BATTERY REDUCED SOC (including lithium ion polymer batteries)	9.4E			444 446 448	100Wh	E0	P941 LP941			
4052	LITHIUM ION BATTERY REDUCED SOC (including lithium ion polymer batteries)	9.4F			444 446 448	100Wh	E0	P941 LP941			
4053	LITHIUM ION BATTERY REDUCED SOC (including lithium ion polymer batteries)	9.4G			444 446 448	100Wh	E0	P940 LP940			
4054	LITHIUM ION BATTERY REDUCED SOC (including lithium ion polymer batteries)	9.4H			444 446 448	100Wh	E0	P940 LP940			
4055	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4A			443	0	E0	P943 LP943			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4056	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4B			443	0	E0	P943 LP943			
4057	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4C			443	0	E0	P942 LP942			
4058	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4D			443	0	E0	P942 LP942			
4059	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4E			443 446	20Wh	E0	P941 LP941			
4060	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4F			443 446	20Wh	E0	P941 LP941			
4061	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4G			443 446	20Wh	E0	P940 LP940			
4062	ARTICLE WITH INTEGRATED LITHIUM ION CELL or EQUIPMENT WITH INTEGRATED LITHIUM ION CELL	9.4H			443 446	20Wh	E0	P940 LP940			
4063	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4A			443	0	E0	P943 LP943			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4064	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4B			443	0	E0	P943 LP943			
4065	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4C			443	0	E0	P942 LP942			
4066	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4D			443	0	E0	P942 LP942			
4067	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4E			443 447	1g	E0	P941 LP941			
4068	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4F			443 447	1g	E0	P941 LP941			
4069	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4G			443 447	1g	E0	P940 LP940			
4070	ARTICLE WITH INTEGRATED LITHIUM METAL CELL or EQUIPMENT WITH INTEGRATED LITHIUM METAL CELL	9.4H			443 447	1g	E0	P940 LP940			
4071	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4A			440 449		E0	P943 LP943			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4072	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4B			440 449		E0	P943 LP943			
4073	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4C			440 449		E0	P942 LP942			
4074	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4D			440 449		E0	P942 LP942			
4075	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4E			440 445 449	100Wh	E0	P941 LP941			
4076	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4F			440 445 449	100Wh	E0	P941 LP941			
4077	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4G			440 445 449	100Wh	E0	P940 LP940			
4078	ARTICLE CONTAINING LITHIUM ION BATTERY or EQUIPMENT CONTAINING LITHIUM ION BATTERY, non-integral	9.4H			440 445 449	100Wh	E0	P940 LP940			
4079	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4A			440 449	0	E0	P943 LP943			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4080	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4B			440 449	0	E0	P943 LP943			
4082	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4C			440 449	0	E0	P942 LP942			
4083	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4D			440 449	0	E0	P942 LP942			
4084	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4E			440 447 449	2g	E0	P941 LP941			
4085	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4F			440 447 449	2g	E0	P941 LP941			
4086	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4G			440 447 449	2g	E0	P940 LP940			
4087	ARTICLE CONTAINING LITHIUM METAL BATTERY or EQUIPMENT CONTAINING LITHIUM METAL BATTERY, non-integral	9.4H			440 447 449	2g	E0	P940 LP940			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4088	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4A			443 449	0	E0	P943 LP943			
4089	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4B			443 449	0	E0	P943 LP943			
4090	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4C			443 449	0	E0	P942 LP942			
4091	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4D			443 449	0	E0	P942 LP942			
4092	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4E			443 449	100Wh	E0	P941 LP941			
4093	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4F			443 449	100Wh	E0	P941 LP941			
4094	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4G			443 449	100Wh	E0	P940 LP940			
4095	ARTICLE WITH INTEGRATED LITHIUM ION BATTERY or EQUIPMENT WITH INTEGRATED LITHIUM ION BATTERY	9.4H			443 449	100Wh	E0	P940 LP940			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4096	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4A			443 449	0	E0	P943 LP943			
4097	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4B			443 449	0	E0	P943 LP943			
4098	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4C			443 449	0	E0	P942 LP942			
4099	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4D			443 449	0	E0	P942 LP942			
4100	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4E			443 449	2g	E0	P941 LP941			
4101	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4F			443 449	2g	E0	P941 LP941			
4102	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4G			443 449	2g	E0	P940 LP940			
4103	ARTICLE WITH INTEGRATED LITHIUM METAL BATTERY or EQUIPMENT WITH INTEGRATED METAL BATTERY	9.4H			443 449	2g	E0	P940 LP940			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4104	LITHIUM ION SOLID STATE CELL	9.4A				0	E0	P943 LP943			
4105	LITHIUM ION SOLID STATE CELL	9.4B				0	E0	P943 LP943			
4106	LITHIUM ION SOLID STATE CELL	9.4C				0	E0	P942 LP942			
4107	LITHIUM ION SOLID STATE CELL	9.4D				0	E0	P942 LP942			
4108	LITHIUM ION SOLID STATE CELL	9.4E				20Wh	E0	P941 LP941			
4109	LITHIUM ION SOLID STATE CELL	9.4F				20Wh	E0	P941 LP941			
4110	LITHIUM ION SOLID STATE CELL	9.4G				20Wh	E0	P940 LP940			
4111	LITHIUM ION SOLID STATE CELL	9.4H				20Wh	E0	P940 LP940			
4112	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4A				0	E0	P943 LP943			
4113	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4B				0	E0	P943 LP943			
4114	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4C				0	E0	P942 LP942			
4115	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4D				0	E0	P942 LP942			
4116	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4E				1g	E0	P941 LP941			
4117	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4F				1g	E0	P941 LP941			
4118	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4G				1g	E0	P940 LP940			
4119	LITHIUM METAL SOLID STATE CELL (including lithium alloy cells)	9.4H				1g	E0	P940 LP940			
4120	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4A			441		E0	P943 LP943			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4121	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4B			441		E0	P943 LP943			
4122	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4C			441		E0	P942 LP942			
4123	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4D			441		E0	P942 LP942			
4124	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4E			441	100Wh	E0	P941 LP941			
4125	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4F			441	100Wh	E0	P941 LP941			
4126	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4G			441	100Wh	E0	P940 LP940			
4127	LITHIUM ION SOLID STATE BATTERY (including lithium ion polymer batteries)	9.4H			441	100Wh	E0	P940 LP940			
4128	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4A			441		E0	P943 LP943			
4129	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4B			441		E0	P943 LP943			
4130	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4C			441		E0	P942 LP942			
4131	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4D			441		E0	P942 LP942			
4132	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4E			441	2g	E0	P941 LP941			

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
-	3.1.2	2.0	2.0	2.0.1.3	3.3	3.4	3.5	4.1.4	4.1.4	4.2.5 / 4.3.2	4.2.5
4133	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4F			441	2g	E0	P941 LP941			
4134	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4G			441	2g	E0	P940 LP940			
4135	LITHIUM METAL SOLID STATE BATTERY (including lithium alloy batteries)	9.4H			441	2g	E0	P940 LP940			

8. The following new special provisions are suggested for adoption in Chapter 3.3:

440 This entry only applies to articles and equipment where the cell or battery is fully encased in the equipment but can be removed and replaced without permanently damaging the equipment. For transport the cell or battery shall be electrically isolated from the equipment, and the circuit shall be positively broken (e.g. disconnected or by the insertion of non-conductive material into the circuit). Equipment that has external encased cells or batteries (e.g. hand tools) are not covered by this entry, such items will be transported with the battery detached from the article or equipment and consigned under the appropriate cell or battery entry.

441 This entry may also be used for batteries that have passed the Manual of Tests and Criteria 38.3 tests but have not been tested to 38.3.5 and 38.3.6 comprising totally of cells that have been classified after 38.3.5 and 38.3.6 testing and this is the most severe classification of any cell in the battery.

442 This entry applies when both the lithium-ion cells and the lithium metal cells have been tested and classified according to the tests within the Manual of Tests and Criteria 38.3, 38.3.5 and 38.3.6. and this is the most severe classification of any cell in the battery.

443 This entry only applies to articles where the cell or battery cannot be removed without permanent damage to the article or equipment.

444 This entry may also be used for batteries meeting the requirements of special provision 441 where all the cells have met the requirements of special provision 445 and this is the most severe reduced charge classification.

445 This entry is only applicable to cells that have been tested to Manual of Tests and Criteria 38.3 38.3.5 and 38.3.6 fully charged and at reduced state of charge. The cells must be classification marked with both the full and reduced state of charge and the consignor has evidence that the cells or batteries being consigned are charged at or below the marked reduced state of charge percentage.

446 Limited quantity watt hour rating is based on fully charged cells or batteries

447 Limited quantity for lithium metal or lithium alloy cells is the lithium content, for lithium metal or lithium alloy batteries it is the aggregate lithium content

448 The proper shipping name shall be supplemented with the percentage state of charge in parenthesis (e.g. (50%))

449 This entry does not apply to vehicles

V. Sustainable Development Goal

9. This proposal and others made by the expert from the United Kingdom relative to the matter of lithium battery identification contribute to Sustainable Development Goal 16: *“Peace, Justice and strong institutions by promoting consistent regulations for the safe transport of dangerous goods.”*
