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|  |  | **UN/SCETDG/64/INF.27** |

**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** | **Subsi-diary hazard** | **UN packing group** | **Special provi-sions** | **Limited and excepted quantities** | | **Packagings and IBCs** | | **Portable tanks and bulk containers** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Packing instruction** | **Special  packing provisions** | **Instruc-tions** | **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 |  |  |  |
| 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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **4046** | **LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)** | **9.4F** |  |  | **442 446 447** | **1.5g (metal) +**  **10Wh (ion)** | **E0** | **P941 LP941** |  |  |  |
| **4047** | **LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)** | **9.4G** |  |  | **442 446 447** | **1.5g (metal) +**  **10Wh (ion)** | **E0** | **P940 LP940** |  |  |  |
| **4048** | **LITHIUM BATTERY CONSISTING OF LITHIUM METAL AND LITHIUM ION CELLS (including lithium alloy)** | **9.4H** |  |  | **442 446 447** | **1.5g (metal) +**  **10Wh (ion)** | **E0** | **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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** |  |  |  |
| **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.”*