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

23 June 2022

### Sub-Committee of Experts on the Transport of Dangerous Goods

#### Sixtieth session

Geneva, 27 June-6 July 2022

Item 4 (c) of the provisional agenda

#### Electric storage systems: transport provisions

## Information on cells with a gross mass of 500 g or more employing a strong, impact resistant outer casing

### Transmitted by the expert from China

### Introduction

1. China submitted ST/SG/AC.10/C.3/2022/42 to the TDG Sub-Committee, proposing to amend the mass limit of the cells employing a strong, impact resistant outer casing to 500 g in P903(2) of the *Model Regulations*.
2. In the sixth revised edition of the *Manual of Tests and Criteria*, the definition of large cell was amended to be a cell with a gross mass of more than 500 g. Large cell is widely used in electric vehicle industry and energy storage industry with an annual output of millions of pieces all over the world. As the industry pays more attention to the safety of battery products, part of large cells are packaged in hard shells made of 3003 alloy to improve its safety performance. This material is composed of aluminum and manganese with tensile strength larger than 120 MPa and yield strength larger than 90 MPa. The outer casing can protect the internal structure of the cell from impact and shocking during normal transport condition.
3. To verify the strength and impact resistance capability of the outer casing of the cells, China chose three kinds of cells weighing 1400 g, 2800 g and 5400 g and dropped them from a height of 1.2 m in five different directions respectively. After dropping, the cells did not show any fire, explosion, electrolyte leakage or distortion which would affect transport safety. Moreover, the cells were subjected to a force applied to the top surface of the cell for 24 h. The force was equivalent to the pressure generated by a 3 m high stack. After stacking, the cells did not show leakage or instability for outer casing. Some pictures of cells after dropping or stacking are shown in figures Fig. 1 and Fig. 2 below.











样品编号 Sample Number	测试前 Before Test	测试后 After Test
1#: RTG220607013		
2#: RTG220607014		
3#: RTG220607015		
4#: RTG220607016		
5#: RTG220607017		

Fig. 1 Pictures of cells after dropping

样品编号 Sample Number	测试前 Before Test	测试后 After Test
1#:001CB31000002C2M1101226		

Fig. 2 Pictures of cells after stacking