

**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

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Item 4 of the provisional agenda

Electric storage systems

**Transport requirements for ultracapacitors (Electric Double Layer Capacitors)**

Transmitted by the Kilo Farad International (kFI)

**Proposed Consolidated Text of Informal documents INF.36  
and INF 65**

**Proposal**

The new table entry would read as follows:

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
XXXX	CAPACITOR, electric double layer (greater than 0.3 Wh)	9			AAA	None	E0	P003	Pyy		

The accompanying special provision AAA would read:

“AAA This entry applies to energy storage devices known as Electric Double Layer Capacitors (EDLCs). EDLCs transported under this entry must meet the following conditions:

- (a) Capacitors and modules are transported in an uncharged state, except that capacitors and modules installed in equipment are transported uncharged or protected against short circuiting;
- (b) Each capacitor or module with a maximum energy storage capacity of more than 0.3 Wh, is protected against a potential short circuit hazard in transport as follows:
  - When the energy storage capacity is more than 0.3 Wh but less than or equal to 10Wh, each unit must be protected against short circuit or be fitted with a metal strap connecting the terminals; and
  - When the energy storage capacity is more than 10Wh, each unit must be fitted with a metal strap connecting the terminals;
- (c) Capacitors containing dangerous goods shall be designed to withstand a 95 kPa pressure differential and all capacitors shall be designed to safely relieve any pressure buildup through a vent or a weak point in the receptacle; and

(d) Capacitors with an energy storage capacity of more than 0.3 Wh when charged are marked with the maximum energy in Wh, based on the nominal voltage and capacitance.

Capacitors containing no dangerous goods, as indicated by a marking that states “No DG” when the marked energy storage capacity exceeds 10Wh, and meeting the conditions in paragraphs (a) to (d) are not subject to other provisions of these regulations.

Other capacitors with a marked energy storage capacity of 10 Wh or less are not subject to other provisions of these regulations when they meet the conditions in paragraphs (a) to (d) and are capable of withstanding a 1.2 meter drop test [in any orientation as packaged for transport] or [unpacked on an unyielding surface] without loss of contents.

When installed in equipment, electric double layer capacitors of more than 10Wh meeting the conditions in paragraphs (a) to (d) above are not subject to these Regulations provided the equipment is packaged as required by Packing Instruction P003.

Add a new Pyy in P003 as follows:

Pxx When electric double layer capacitors are packed with equipment, they shall be packed in strong outer packagings. When electric double layer capacitors are contained in equipment, the equipment shall be packed in strong outer packagings constructed of suitable material of adequate strength and design, in relation to the packagings capacity and its intended use in such a manner as to prevent accidental operation during transport. Large equipment containing capacitors contained in the equipment for the functioning of that equipment may be offered for transport unpackaged or on pallets when the electric double layer capacitor is afforded equivalent protection by the equipment in which it is contained.

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