

**TRANSPORTATION REGULATIONS OF IMPACT TO
BATTERY COLLECTION AND TRANSPORTATION**

A publicly accessible version of the Special Provisions of the TDGR regulations is available at:

<http://www.tc.gc.ca/tdg/clear/schedule2.htm>

Specific sections of note are as follows:

*Transportation of Dangerous Goods Regulations
SOR/ 2001-286
Schedule 1*

Special Provision 34 [for UN3090 and UN3091]

- (1) Lithium cells and batteries may be transported under this shipping name, if
- (a) each cell or battery is included in Class 9 in accordance with section 38.3 of Part III of the Manual of Tests and Criteria;
 - (b) each cell contains not more than 12 g of lithium or lithium alloy;
 - (c) each battery contains not more than 500 g of lithium or lithium alloy;
 - (d) each cell or battery has a safety venting device or is designed to prevent a violent rupture under normal conditions of transport;
 - (e) each cell or battery is equipped with an effective means of preventing external short circuits;
 - (f) each battery containing cells or a series of cells connected in parallel is equipped with diodes to prevent reverse current flow; and
 - (g) the cells and batteries are packed in a means of containment to prevent short circuits and movement that could lead to short circuits.
- (2) These Regulations do not apply to lithium cells and batteries if
- (a) each cell with a liquid cathode contains not more than 0.5 g of lithium or lithium alloy;
 - (b) each battery with a liquid cathode contains a total quantity of not more than 1 g of lithium or lithium alloy;
 - (c) each cell or battery with a liquid cathode is hermetically sealed;
 - (d) each cell with a solid cathode contains not more than 1 g of lithium or lithium alloy;

- (e) each battery with a solid cathode contains a total quantity of not more than 2 g of lithium or lithium alloy;
 - (f) each lithium-ion cell contains a total quantity of not more than 1.5 g of equivalent lithium content, where the equivalent lithium content in grams is 0.3 times the rated capacity of the cell in ampere-hours;
 - (g) each lithium-ion battery contains a total quantity of not more than 8 g of equivalent lithium content, where the equivalent lithium content in grams is 0.3 times the rated capacity of the battery in ampere-hours;
 - (h) for a liquid cathode battery that contains more than 0.5 g of lithium or lithium alloy or a solid cathode battery that contains more than 1 g of lithium or lithium alloy, the battery does not contain a liquid or gas that is dangerous goods unless the liquid or gas, if free, would be completely absorbed or neutralized by other materials in the battery;
 - (i) the cells are separated to prevent short circuits; and
 - (j) the batteries are separated to prevent short circuits and, except when they are installed in electronic devices, are packed in strong means of containment.
- (3) These Regulations do not apply to lithium cells or batteries if
- (a) the cells or batteries are not included in Class 9 in accordance with section 38.3 of Part III of the Manual of Tests and Criteria;
 - (b) each cell contains not more than 5 g of lithium or lithium alloy;
 - (c) each battery contains not more than 25 g of lithium or lithium alloy; and
 - (d) the cells and batteries are packed or are designed to prevent short circuits under normal conditions of transport.

Special Provision 39 [for UN2794, UN2795, UN2800]

(1) These dangerous goods may be handled, offered for transport or transported under this shipping name if the dangerous goods are

(a) protected from short circuits; and

(b) capable of withstanding, without leakage of battery fluid, the following tests:

(i) a vibration test, in which

(A) the battery is rigidly clamped to the platform of a vibration machine and a simple harmonic motion having an amplitude of 0.8 mm (1.6 mm maximum total excursion) is applied,

(B) the frequency is varied in steps of 1 Hz each minute between the limits of 10 Hz and 55 Hz,

(C) the entire range of frequencies and return is traversed in 95.5 minutes with 2 minutes spent at each frequency for each mounting position (direction of vibration) of the battery, and

(D) the battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods, and

(ii) after the vibration test, a pressure differential test, in which

(A) the battery is stored for 6 hours at 24°C ± 4°C while subjected to a pressure differential greater than or equal to 88 kPa, and

(B) the battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least 6 hours in each position.

(2) These Regulations do not apply to UN2800, BATTERIES, WET, NON-SPILLABLE, electric storage, that are not intended for disposal if,

(a) at a temperature of 55°C, electrolyte will not flow from a ruptured or cracked battery case and there is no free liquid to flow; and

(b) when the battery is prepared for transport, the battery's terminals are protected from short circuits.