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Date: 25/07/2014
Subject: Disposal of lithium ion batteries

1. Safe disposal of Lithium Polymer batteries

1.0 Lithium Polymer batteries are used in a wide variety of both scientific equipment and personal electrical equipment. There are several types of Lithium batteries but they are all high energy power sources and all are potentially hazardous.

For safety reasons, it's best that Lithium Polymer cells be fully discharged before disposal. However, if physically damaged, it is NOT recommended to discharge Lithium Polymer cells before disposal, (see below for details). The batteries must also be cool before proceeding with disposal instructions. To dispose of Lithium Polymer cells and packs the instructions below should be followed:-

1.1 If any Lithium Polymer cell in the pack has been physically damaged, resulting in a swollen cell or a split or tear in a cell's foil covering, do NOT discharge the battery. Go to Step 1.5.

1.2. Place the Lithium Polymer battery in a fireproof container or bucket of sand.

1.3. Connect the battery to a Lithium Polymer discharger. Set the discharge cut-off voltage to the lowest possible value. Set the discharge current to a C/10 value, with "C" being the capacity rating of the pack. For example, the "1C" rating for a 1200mAh battery is 1.2A, and that battery's C/10 current value is (1.2A / 10) 0.12A or 120mA. Or, a simple resistive type of discharge load can be used, such as a power resistor or set of light bulbs as long as the discharge current doesn't exceed the C/10 value and cause an overheating condition. For Lithium Polymer packs rated at 7.4V and 11.1V, connect a 150 ohm resistor with a power rating of 2 watts to the pack's positive and negative terminals to safely discharge the battery.

It's also possible to discharge the battery by connecting it to an ESC/motor system and allowing the motor to run indefinitely until no power remains to further cause the system to function.

1.4. Discharge the battery until its voltage reaches 1.0V per cell or lower. For resistive load type discharges, discharge the battery for up to 24 hours.

1.5. Submerge the battery into a bucket or tub of salt water. This container should have a lid, but it does not need to be air-tight. Prepare a bucket or tub containing 3 to 5 gallons of cold

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water, and mix in 1/2 cup of salt per gallon of water (to increase conductivity). Drop the battery into the salt water. Allow the battery to remain in the tub of salt water for at least 2 weeks.

1.6. Remove the Lithium Polymer battery from the salt water and dispose of as hazardous waste. Written confirmation that the batteries have been fully discharged and soaked for the appropriate length of time, should accompany the batteries to the hazardous waste storage facility.

Yours sincerely

Andrew Hinton-Lever
CEO & Chairman

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