

## **Direct liquid ethanol/ methanol fuel cell**

In Israel, Medis Technologies Ltd. reports to have achieved important advances in the performance of its Direct Liquid Ethanol (Methanol) Fuel Cell with respect to energy capacity and operating time. During lab-scale trials the fuel cell, with an overall size of 20 cm<sup>3</sup>, operated at 0.5 V for 10,000 mAh continuously for 24 h on a single fuelling. It exhibited an energy capacity of 250 Wh/kg. These performance characteristics are superior to the actual performance of lithium ion batteries used in portable electronic devices. The direct liquid methanol (DLM) fuel cells differ from PEM fuel cells in three major aspects:

- DLM fuel cells utilize a proprietary liquid electrolyte that acts as the membrane instead of the solid polymer membrane in PEM units. This allows for higher fuel concentration in the fuel cells, thereby enabling higher efficiency and longer use – needed to power 3G cell phones and other portable devices;
- Unlike gas PEM fuel cells, DLM cells do not require an outside source of hydrogen or a reformer. A proprietary anode catalyst extracts hydrogen from methanol/ethanol present in the cell; and
- Medis' proprietary polymer and catalyst enable more effective electrodes for both DLM and PEM cells.

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