

Ty Saville,
Double Carbon Battery Company plc,
190 Camden High Street,
London NW1 8QP.



UNIVERSITY OF
CAMBRIDGE

23rd November 2007

Dear Ty,

Testing of prototype batteries supplied by the Double Carbon Battery Company plc

We are happy to report on the results of testing carried out to date on the four prototype Double Carbon Batteries supplied by you. Our first finding is that the Double Carbon Batteries have charge and discharge characteristics similar to those of so-called super-capacitors and not like those of a conventional battery.

The prototype batteries showed varying degrees of leakage current but attempts in the later prototypes to limit the leakage current have met with some success. The leakage current seems primarily to be related to the length of the perimeter of the cell and does not correlate with cell area. This is encouraging in that it suggests that the problem is associated with sealing rather than being a fundamental issue with the technology. At the same time, cells with the lowest value of normalized leakage often show the highest normalized series resistance.

There is also much variability between cells. As we are unsure of the precise active area of the cells, the normalizations need to be treated with some caution. Nevertheless, the best cells combine a relatively low normalized leakage current with a relatively low normalized resistance.

It has been difficult to normalize the capacity of the batteries due to uncertainties over the active volume.

In terms of further work, the following issues need to be addressed:

1. Can cells of repeatable quality be made?
2. Can the dimensions of the active volumes be made available so that a trustworthy normalization can be made?
3. Can a comparison be made with a leading brand of super-capacitor?

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Our belief is that if the Double Carbon Battery Company can improve quality control during the manufacture of the cells to reduce variability in performance, this would lead to a product that could be competitive with existing super-capacitors. In this regard, we have already agreed to test leading-brand super-capacitors to obtain benchmark performance data.

Finally, there are potential applications for super-capacitors in conjunction with fuel cell systems, for general electric vehicle use and for energy storage in renewable generation. However, for the Double Carbon Battery to be successful it must have either price, environmental or performance advantages over existing technology.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Richard". The signature is written in a cursive, slightly slanted style.