2000 NASA Aerospace Battery Workshop
Recent Developments in Silver/Zinc Rechargeable Cell Studies

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For design performance analysis.
Eight cycle life and five wet life. Periodic cell removal.
Experimental – Five cell sets of thirteen cells each.
Objective – Reduce number of layers of separation on cathode while maintaining cell performance.
Casing model cell studies.
Introduction – History of cellphone and sausage.
Cell Separation Configurations:

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All but one of the clear Flexel wet life cells shorted out by the tenth month, while none of the C19 cells shorted, so comparison is flawed.
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clearly superior.

The split wrap wraps in cycle life, both standard for split wrap vs.

Combined plots

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Set 1, overall, actually superior to Sets 2 and 13 were performed adequately. Not reflect the actual capacity averages do all, so the discharge Sets 2 and 13 shorted at month, with no cells in out beginning at the 6th The Set 1 cells shorted Rechargeable Cell Studies Recent Developments in Silver/Zinc.
In any set, shorts occurred vs. C19, but no lowered capacity exhibit slightly configurations the two SC Cycle life data for rechargeable cell studies Recent developments in Silver/Zinc
Life data performed single layer and SC layer indicate that
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Silver migration in wet cell life cells occurred at a much lower rate for C19 cells.

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Silver Migration

Cycle life.

Standard wrap in similar to split wrap.

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cells in wet life. For standard wrap greater rate than occurred at a much split wrap cells.

Silver migration in

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Although it appears that the single SC layer cells have a much higher silver migration rate than C19, layer-by-layer SC sets was trapped at the PVA layer.

The data show that all SC sets was trapped in both silver in both the silver in both silver.
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PVA film was stopped by the silver in the SC cells. The data show all the layer-by-layer data. As in the cycle life.
Cellulose vs. Sausage Casing

Split Wrap vs. "Standard" Wrap

Clear vs. Silver-Treated Cellulose

Conclusions

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6-mill fiber-reinforced SC tubular
1-mill (tubular) SC/1-mill PVA film
2.3-mill plain or
film in the following configuration:

Strongly consider use of sausage casing with PVA

Use split wrap for cellulophane whenever possible

cellulophane

Use silver-treated cellulophane instead of clear

Recommendations

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