

Reports of Anomalous Self-Heating Events

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Self - Heating

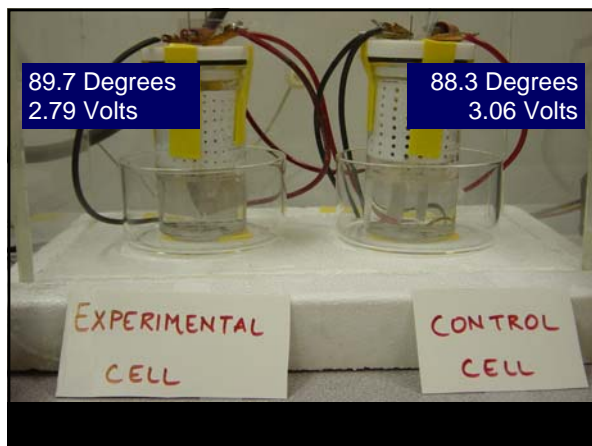
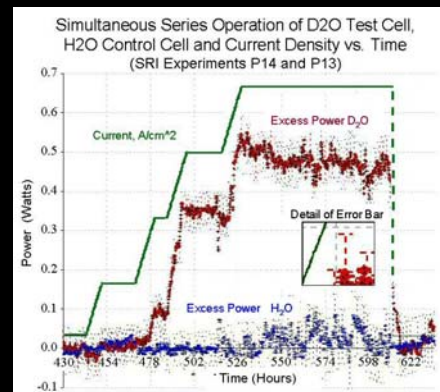
“Unambiguous Heating - Independent from Input Energy”

Beyond Calorimetry
– Runaway Boiling, Heating, Melting –

Why is it Important?

- Scientific Curiosity > Societal Benefit
- Nanoscale Hot Spots > Massive Scale Energy

Calorimetry Arguments are SO “Last Year”



Calorimetry Arguments are SO “Last Milleneum”

April 19, 1989

Robert Huggins,
Materials Scientist
Stanford Univ.



“We Saw a Difference”

Denial of Excess Heat?

No Excuse!

Gluck Criterion for Cathodes

**Dead
Sick
Healthy**

**Sick cathodes may be healthy -
- If given the chance to get hot -
(Not talking about sex, but positive feedback)**

Healthy Cathodes

1985 – Fleischmann-Pons
1992 – Fleischmann-Pons
1990s – Mizuno
1990s – Forsley
1990s – SPAWAR San Diego
1997 – U.S. Government Lab
Others...

1985 – Fleischmann-Pons

12" Hole in Benchtop
Crater in Concrete Floor
Partially Destroyed Fume Hood
Partially Vaporized Cathode
Particulate in Air

1992 – Fleischmann-Pons

4 Cell Boil-Off On-Demand
144 Watts Excess Power
485 Percent Excess (W-out/W-in)
Kel-F Melted > 300 Deg. C

**Phase Change Liquid to Vapor
Took Place in ~60s**

1990s – Tadahiko Mizuno

Boiled > 15 Liters of Water in 8 Days
No Input Power
80 Mj Energy

1990s – Forsley

Cell at equilibrium at 80°C
Turn off cell – Oops! Turn back on -
Temp. increased rapidly to 125°C
Cracked a plastic insulator
Rapidly boiled off all the electrolyte

What's Needed – Minimum...

- Abandon Flow Calorimetry
- Higher Working Temperatures
- Freedom to consume D2O or Safe Pressurized Configuration
- Ample Pd to Consume (or Ni-H)
- Safe Working Environment

VIDEO
F-P 4-Cell Boil-Off

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