

Rathbone Energy, Inc.

Our Position on Nickel Cadmium and Nickel Metal Hydride and Lithium Ion Battery Cells

This is very important information regarding your future battery plans.

First the Nickel Cadmium Batteries, then the swift changes occurring in the nickel metal hydride market: It is important for you to understand the ongoing transition in the battery market. This will allow you the client to better plan / budget your three year, five year or longer budgets and equipment purchases.

Consider this important information regarding rebuilding or recelling **Any nickel cadmium** battery including ProPac, TrimPac, ComPac, 30/13, Power Strap, Proformer, and any other nickel cadmium battery:

Rathboneenergy.com has been a full disclosure web site since inception in 1993. We believe it is important to sell product and right now we really need to sell product. But, we believe that it is just as important that you the client be armed with the knowledge and transitional changes before they take place in the battery industry.

Rathbone Energy is an Environmentally Conscious Company striving to stay Green, leaving the smallest carbon footprint we can. You cannot use nickel cadmium battery cells and qualify as "Green" or claim proper direction in your carbon footprint. I am going to discuss Panasonic and Sanyo and their current battery chemical plans later in this letter.

With Our Own line of Rathbone Lithium Ion Broadcast Battery packs, Rathbone Energy has phased out new assembly and rebuilding with **nickel cadmium** battery cells, no longer supporting the rebuild or recell of Original Equipment Manufacturer (OEM), **nickel cadmium** battery products.

Being "the only Battery Assembler" Worldwide that supports rebuilding battery packs, we understand that this will create the image of a hardship on those invested in nickel cadmium but this is a change that must/will happen to your inventory and we offer what we feel is the best solution upgrading your battery inventory to a higher level at the very best possible savings to you.

Panasonic dropped nickel cadmium in 2005. Panasonic is now deleting certain nickel metal hydride cells. I was told by one Panasonic person they had already dropped all nickel metal hydride cells. On June 02, 2009, when talking with the top Panasonic OEM representative his statement was that no one had asked Panasonic for comment and that it was untrue that they had dropped all nickel metal hydride cells. When I asked about purchasing their closest equivalent to the required Sanyo cell, he said, yes, we have dropped those cells.

Sanyo supplies the HR-DU (10) I use to rebuild your Hytron 100 Series batteries. Sanyo advised me in early March 2008 that they were going into a massive restructure. Already Sanyo was following the direction of other battery cell manufacturers by continuing to reduce the inventory they maintain in the United States.

The following is my understanding. Sanyo basically has little to no inventory in the US. Sanyo has removed the majority of assemblers that they sell to direct, including me. Sanyo has kept a handful of assemblers in the US that can meet directly a \$100,000.00 minimum order and hold inventory on their shelves instead of at Sanyo USA. Sanyo continues to reduce and deplete the nickel cadmium product until they are at zero. Sanyo is now beginning to reduce their nickel metal hydride supply as well. Eventually that will be at zero as they change their focus only on lithium ion technology. Factories who private label for large companies who retail mass volume of a specialty battery product under their own brand name will continue to get battery cell supply from Sanyo for now. These private label companies buy a mass volume and stock on their shelves and those of their product distributors for unknown periods of time.

Since we no longer rebuild or do new assembly with nickel cadmium battery cells below is a contact for recycling all your nickel cadmium battery cells. We are NOT affiliated with any recycle contact. For those with minimal quantities of nickel cadmium battery packs they can be dropped off at any Home Depot, Lowes, Sears, etc.

Gary Casola
Metal Conversion Technologies, LLC
1 East Porter St.
P.O. Box 1026
Cartersville, GA 30120
678-721-0022 Phone
678-721-0266 FAX
gary@metalconversion.com (Reference that you were referred by Ron Rathbone.

Below is information to remember and consider as you budget your money.

- 1) GE/GATES Sintered Positive Electrode Rapid Charge, High Capacity Battery cells with 900-1200 discharge cycles, and Panasonic equivalents, that in my professional opinion, delivered superior heat handling characteristics of all nickel cadmium battery cells, built my high quality reputation in the broadcast industry. Sintered Positive Electrode nickel cadmium battery cells are no longer manufactured by Sanyo. Panasonic stopped manufacturing nickel cadmium going on 4 years ago. Any stock found in Panasonic is too old to get close to 100% capacity.
 - a) The Sanyo sintered positive electrode N3000CR I used in the TrimPacs and the KR5000DEL I had to change to in rebuilding ProPacs were my best available nickel cadmium options in 2007 and early 2008, and came to me direct from Sanyo. Lead time continued to increase. Sanyo has now dropped nickel cadmium.
 - b) Sanyo is in serious restructure and has removed most of their distributors that bought direct. **No Value Added Distributor** did rebuilding except me, all left have extreme minimum orders. At the 1st of the 4th quarter of each year end the battery cell manufacturers and value added distributors like me begin unloading any battery cell model still on their shelves without incoming replacement inventory. More unpopular battery cell models may sit in their warehouses for long periods of time for many, but not me. Value added Distributors then begin to re-stock their shelves in mid 1st quarter of the next year.
 - c) Rebuilders call value added distributors like me or distributors who buy from value added distributors like me and say, "I need battery inserts to fit this bla bla. What is the best price you can give me?" No idea of cell quality, age, or testing, just ability to hopefully attach a wiring harness to an insert as long as it gives a voltage and glue the package back together. They lean toward Chinese / South African, Third World, and Consumer quality.
- 2) From Rathbone Energy, The "Best Available" battery cell for your ProPac was No longer the Gates/GE Sintered Positive Electrode or Panasonic equivalent battery cells we used to be able to purchase. In 2007 it became a Sanyo KR5000DEL Paste Negative Cell at 500 discharge cycles and not close to the durability of the already mentioned Gates and Panasonic battery cells. I never had a complaint from the performance of the GE/gates or Panasonic cells. Not so with Press Negative cells even though I would tell everyone up front.
 - a) You can get Sintered Positive Electrode in Chinese battery cells but they are terrible. I do not do Chinese.
 - b) Where Panasonic, Saft, and Sanyo continue to reduce inventory actually stocked in the US and giving up to 36 week ARO, their Chinese and third world counter parts are very aggressive on stocking of inventory in the US and very aggressive on price. However, the quality is terrible. Most assemblers and distributors have been supplying the lower quality battery cells for some time. We will not.
 - c) You can find amateur recell / refill companies that buy battery pack inserts from distributors or have a small cap welder they fumble around with but their battery cells are horrible, Chinese, third world, consumer grade, name brand is BS, etc.

- i) At this point I would NOT waste my money on Nickel Cadmium even if through the OEM, new!
- ii) How long did that battery sit on a distributor shelf before being bought by you?
- iii) Who is the true manufacturer of the battery cell?
- iv) Considering the new discharge cycles I would also not spend money on nickel metal hydride.
- v) Nickel cadmium-500 Discharge Cycles, Nickel Metal Hydride-500 discharge cycles, and New LG Chem, Panasonic, and Sanyo, "Best" Lithium Ion-500 Discharge Cycles. That is why we are focusing on our Rathbone Lithium Ion Broadcast Batteries. We can retrofit belts with adaptor plates for our Lithium Ion Batteries.
- d) Lithium Ion assembly in a factory is a safety nightmare. Then the inability to hire technicians to work here properly with lithium ion without training them myself. Electronics was pulled out of most American high school, technical institutes, and colleges several years ago by state board of regions. GWB's "edjukayshun"
- e) Here in the US many small battery assemblers are attempting to set up poor assembly lines to assemble third world lithium ion battery cells into battery packs. People, employees get hurt, battery packs are poor quality, and bad things happen in the hands of the clients. A perfect example of this is a small company between Atlanta and Cartersville Georgia that has gone in and out of business several times over the last 20 years. They build crap for a few months then disappear. A couple of years later they appear again, build crap for a few months and then disappear again.
 - i) Many times these assemblers have attempted to purchase Sanyo, Panasonic, or LG Chem direct. Quality lithium ion manufacturers refused to sell the lithium ion direct. These assemblers go through other countries, buy other lithium ion cells at better pricing, and continue to build lithium ion battery packs without proper inspection by trained factory battery cell lithium ion specialist.
- f) As for the lithium ion Dionic's we did rebuild before starting our quality line of lithium ion battery packs: After installing our new assembly inserts in old Dionic cases and then testing on Anton Bauer 2702's with DDM, we experience greater than a 65% failure rate on the chargers because the dead or dying batteries came in with other issues that you cannot detect until installing a new insert. Thus we did the labor at least twice for the price of one. The Dionic 90 and Hytron 50, ouch. Later I am pasting below reasons why I think we are better. Thus the "Upgrade your Anton Bauer... to Rathbone".

Lithium Ion "High Load" issues:

- 3) The Best available Nickel Cadmium Press Negative battery cells and Nickel Metal Hydride Foam Paste Negative battery cells, under "high load" even a constant 48WH, or heat, will deteriorate as fast as the Best Available Lithium Ion cells. Constant High Load, Heat, and Very High Impulse discharge will definitely eat away at the "ideal world" discharge specifications of any brand battery cell pack. My web sites have the specification sheets for LG Chem, Panasonic, and Sanyo Brand Lithium Ion, Nickel Cadmium, Nickel Metal Hydride, and Lithium Ion battery cells.
- 4) **Consider "Best Available" LG Chem – South Korea, Panasonic-Japan, Sanyo-Japan, "BEST Available"), NO CHINESE or SOUTH AFRICAN BATTERY CELLS:**
 - a) **Nickel Cadmium-Sintered Positive Electrode: 1200 Discharge Cycles** –Quality models are gone, No Longer Available, Not green, and are being banned in many countries. Of the chemicals listed this one has the broadest temperature range.
 - b) **The next three chemical compounds are more narrow in discharge cycles, durability, impulse-high discharge, and temperature range**
 - c) **Nickel Cadmium-Press Negative: 500 Discharge Cycles – Poor Durability**, Not green, and are being banned in many countries.
 - d) **Nickel Metal Hydride-Foam Paste: 500 Discharge Cycles** - Equivalent to Nickel Cadmium Press Negative in Quality and Temperature Range.
 - e) **Lithium Ion: 500 Discharge Cycles** and 60% of the broadcast market has already gone to lithium ion.
- 5) Rathbone lithium ion battery cell options such as our Rathbone Broadcast Lithium Ion battery packs have a discharge cycle life expectancy of 500 discharge cycles and Rathbone, IDX,

PAG, and Sony packs are built flat to help dissipate heat. Rathbone gold and v mount, IDX V mount, PAG gold and v mount, and Sony v mount all use higher end quality components, and use every necessary component required, without adding unnecessary components that have nothing to do with the safety and quality of the battery pack. These mentioned additional components only increase the possibility of a defective battery.

- 6) With any and ALL battery cells, high heat and high load more quickly degrade the battery cells reducing their life. It is a cost of doing business. When I have nickel cadmium or nickel metal hydride batteries come back under warranty inspection I almost always discover serious venting of the cells. This is caused by multiple and long term high load and high discharge rates. It is NOT warranty and the cost to evaluate what they already know is \$75.00. My average active and passive labor and equipment usage per warranty inspection is an extensive 92 hours.
- 7) Actually, with a 95WH or more battery you should get about 300 discharge cycles before seeing noticeable degradation. Of course, manufacturing specifications from every manufacturer considers a battery good until they reach 50% capacity. My standard is that 60 % would be normal.
- 8) I suggest using a T adaptor plate / Hot Swap such as our Rathbone **RBMB-TDVP90** T Shape Dual V Mount Adaptor or **RBMB-TDGP90** T Shape Dual G Mount Adaptor allowing your system to pull from two lithium ion batteries at the same time or elect our more robust brief case style lithium ion batteries delivering up to 600WH, all found at www.rathbonebroadcastbatteries.com
- 9) We have many standardized adaptors for another market that can be adapted to Your market. Therefore assisting those with expensive equipment powered by nickel cadmium and not ready to invest into new equipment just because they can no longer get a nickel cadmium battery pack to properly interface with their equipment. Refer us to your OEM and Distributors with trained staff so we may enlighten them to alternative solutions.
- 10) Rathbone Lithium Ion Broadcast Batteries were originally designed with a circuit which would cause another company's Smart Chargers to recognize and charge our batteries. However, the factory we use immediately came back and told me that a number of their competitors were in scraps with the above company over this and they would not install that circuit. Of course, since that is the case, neither will I. I can do better anyway.
 - a) Because of this All Rathbone Lithium Ion Gold Mount Style Broadcast Battery Chargers are sold at my cost plus incoming freight and a very, very minor markup to cover paperwork, or they are promotionally given in package deals of Rathbone Lithium Ion Broadcast Batteries, Gold Mount Style.
 - b) Sony, being the stand up company they are, does not trademark their V mount technology so every aftermarket vendor of V mount Lithium Ion Batteries and Chargers can simply duplicate the circuitry of Sony V Mount batteries and chargers. The question then becomes duplication quality. Unlike aftermarket battery distribution companies, Rathbone Energy the battery assembler, uses only the best components inside of our lithium ion broadcast battery packs and chargers.

Rathbone Lithium Ion Broadcast Batteries:

- Excellent Battery protection circuitry are built-in to safeguard against over-discharge, over-charge and over-current.
- We have streamlined the internal operation and performance circuitry of these batteries and they have built in protection circuitry to ensure the highest degree of safety operation available.
- Rathbone is a battery assembler since 1989, are competent, and we use proper weld tabs, insulators, and spacers.
- By streamlining these batteries we remove unnecessary components that might be used to force someone's battery to only work with one brand charger.
- Unnecessary components that have nothing to do with the safety of the battery only increase the chance that the battery will fail prematurely because of unnecessary components being damaged when a battery is jolted or dropped. I will not mention any company name here.
- All batteries are equipped with:

- LED indicators for monitoring the capacity.
- Camera Light Power Tap
- You will also notice the lighter reflective color of the case and the flat nature of the battery pack design which allows less rows of cells that in return allow better heat dissipation of the internal battery cells. The case for the batteries and chargers are generic but are exactly what I wanted for my battery and charger guts.
- LG Chem, Panasonic, and Sanyo "BEST Available" lithium ion battery cells offer +/- 500 charge - discharge cycles and a consistent discharge performance curve throughout the cycle life allowing more run time per cycle. Low end third world and Chinese cells offer < 200 charge - discharge cycles but also supply a quick and constant degrading discharge curve, performance, and it is not unusual to see battery cell leakage which is a danger to the battery, the equipment, and most importantly, the users.
- Individual battery packs are assembled from the same battery cell lot numbers. (Lot-same manufacturing run)
- As with our rebuilding and assembly lines, only fresh cells.
- Your battery packs are custom built under strict quality control using new, fresh premium LG Chem, Panasonic, and Sanyo, balanced battery cells from the same respective manufactured battery cell lots. Battery cells do not have an infinite shelf storage life. Therefore, we do not build up a bulk of battery packs to be left sitting on shelves.

In 1993 Rathbone Energy called all other battery assemblers and distributors to the table by developing the **FIRST AND ONLY FULL DISCLOSURE WEB SITE** educating the end users and giving extreme detail on battery cell specifications and battery pack design,

Our quality and price is Great. You are getting below box house pricing on the Best LG Chem, Panasonic, and Sanyo battery cells, they move fast, so there is a short lead time on orders. Do not wait, place your order today by through our Rathbone Broadcast Battery Store, www.rathboneenergy.biz or email sales@rathboneenergy.com (Primary) or call 800-223-1775.

[Buy American and The Other Side of the Coin, You just have to get angry with USA greed.](#)

For 19 years we have supplied only the very best nickel cadmium, nickel metal hydride, and now lithium ion battery cells for new assembly and for rebuilding. Today we have to compromise on nickel cadmium battery cells and offer the "Best Available" battery cell in nickel cadmium.

Whether a Professional, Freelance, or Network buyer, once they understand the difference between Rathbone Premium Lithium Ion Broadcast Batteries, overpriced segregated batteries with what we consider bad design, and box house low end batteries with Chinese cells, they choose Rathbone. A Professional wants a better value but also understands that when your livelihood depends on your batteries you don't settle for second best or worse in product quality, knowledge, or by use of low grade and "Brand Name" cells and short cuts. Note: amateur recellers that come and go purchase pre-built battery inserts, on price, in bulk from any battery assembler that will meet the price, or they use a very low end cap welder to get by and they do NOT know batteries, and if a particular brand, do not test their recells with AB 2702's with DDM.

Thank you for thinking of My Team and I.

Sincerely,

Ron L. Rathbone

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www.rathbonebroadcastbatteries.com (Strictly Broadcast Batteries and Equipment)

www.rathboneenergy.biz (On-Line Broadcast Store with On-line Specials)

www.batteriesandcircuits.com (Our attempt at a Broadcast Blog)

www.rathboneenergy.com (Detailed Product Information for infinite industries)

There's a better way - rathboneenergy.com - when cell quality is paramount.