

Understanding Lipo Fires by utahflyers.org

Watch the three videos at the end of this entry.

I'm a "Mythbuster" fan and thought it would be a good project to separate myth from truth about the lipos. I have heard a lot of different things, most of which are based on some truth.

The question of "Can a lipo catch fire and start a house fire". Has already been answered by two local flyers. Now the obvious way to prevent lipo fires is by being careful and that works most of the time. It's that one out of 10,000 charging times that comes into question. That once you set the charger wrong or the battery is damaged. So when that happens will your house burn down if the lipo catches fire?

To test this out I needed some lipos that could be destroyed for the sake of science (and fun) and to know what bunkers people were using so I could test a few of the ideas. Our local club tends to be pleasantly paranoid about the dangers and have been quite willing to offer suggestions and donate older batteries rather than throwing them away.

The lipos have to burn to see how a bunker works so my first task was to learn how to get them to burn on command so I could catch it on film. Now for all of you who are concerned that I had the charger set wrong. I had the charger set right.....I wanted the batteries to burn.....That is the idea.

I have heard about people charging lipos in bath tubs, showers, buckets, fish tanks, cinderblocks, bricks boxes, ammo cans, metal garbage cans, and in planes. Did I miss any????

Wouldn't it be fun to try all of them and make a video while doing it???

We will try to represent what people are actually using in the future tests and film.

Just so you know. I still charge in my house even though I am the one burning the lipos. I charge 10+ Lipo battery packs at once plus 3 transmitters and have never had an indoor fire and doubt I ever will, but I am ready if it happens.

I'm not afraid of Lipos--- I respect them. They are only as dangerous as I let them be.

I throw away damaged lipo batteries. Well I sort of throw them away.

I balance my lipo cells, that have the balancing option, between every charge.

I don't over charge or over discharge. I hate puffed lipos.

I charge lipos after I fly and don't let batteries sit discharged.

I wait for lipos to cool. I don't charge warm/hot lipo batteries.

I don't field charge even though I am set up to do so due to heat and distractions.

I choose props and motors that keep the batteries within their recommended limits.

I triple check my chargers.

My Hobbico MKIIs have green lights for lipos that I can see from across the room.

My Electrify Polycharge 4 only will charge lipos so I know that it is set for the right battery type.

My chargers are quick to alarm if batteries are not charging normally.

I charge multiple batteries at once so I can stay with them. This is my build time.

I glued the charge adjustment knobs on my chargers so they don't accidentally get set to higher charge rates.

I use a bunker that separates every battery.

My chargers are 4' from the charging batteries.

There are no combustible materials near the charging batteries.

I have just concrete and tin in burning range of the bunkers.

I have a fire alarm specific for the chargers mounted directly above the charge site.

I have a fire extinguisher outside the door of the room where I charge the batteries.

I would have a house of foul smelly smoke, but I would have a house.

To dispose of old lipos batteries soak them overnight in water saturated with salt to fully discharge them and then you can throw them in regular trash.

I started these tests to learn about lipos and see if my cinder block bunkers are sufficient.

April 1, 2007

I just saw a garage that had \$25,000+ of damage from a local flyer that had a fire while fast-charging a NiMH battery without a bunker. I believe a simple cinderblock bunker would have been able to contain the fire.

July 4th 2008

Discussion - "Hot Pants" new definition

This past 3 weeks I have had two different flyers show me lipo batteries that have had balancer wires melt while being carried in a pocket. This concerns me because I often carry batteries in my pockets.

In one instance one of the wires melted when the micro deans plug he was using came in contact with one of the tiny but visible wire connector in the TP balancer plug. We could tell that it had made contact with the micro deans because it had burned the end on the plug too.

The other melted coming in contact with car keys or something else in the pocket and melted two wires. I suppose it could also happen in a battery box.

I got looking at my new Chinese battery balancing plug and the exposed wire connections are 3x as visible as the TP variety so I figure the danger is much higher.

I do not want to accidentally disable the plug so I did not want to use Zap or a hot glue gun to insulate the micro connectors and have it them glue solid or melt with heat.

I tried some new Shoe Goop that is fairly liquid, dries fast and easy to work with so I put a thin layer over the exposed connectors on the side of the balancing plugs making sure not to get any in the plug. I wiped off the excess so that the plugs would still fit in the balancer.

What I see is people charging the batteries without connecting them to a balanced Charger. Of course you are going to damage the batteries. They are probably not using the correct charger, too much voltage, etc. We always charge ours with appropriate chargers and we have had no problems. As far as people carrying them in their pockets: any moisture is going to short the leads at the connectors. Always carry them in something proper. Most of the problems associated with anything is failure to read instructions and improper handling and use.

The storage mode on your charger put your batteries into a kind of a half- charged mode (3.7 - 3.9 volts per cell). If you are simply storing your batteries with the intention of using them again soon, (within the next week or two), then keep them fully charged. However, if you plan on storing them for longer than two weeks, it would be smart to keep them in storage mode. This is because letting your batteries sit at full voltage wears the cells out, and stortens the life and performance of the battery. Leave the battery at too low of a voltage, however, (3.0 - 3.4 volts per cell), can be very bad for it also. Thiss is because all batteries have something called self discharge, meaning they inevitably lose charge over time, even if there not plugged into anything at all. So, as the already "dead" battery begins to lose the last bit of charge it has, the cells quickly drop to a voltage to low to revive the battery, and it is gone forever. (There are ways to reverse this effect with some chargers, but the battery will never be the same)