

## WARNING – LITHIUM POLYMER BATTERY USE

While LiPo fires are rare, they can and will happen. They happen incredibly quickly and can do a considerable damage to person or property. Even when operated as intended, there is no way to predict when a LiPo may ignite.

LiPo fires are instant, hot, explosive and generate toxic smoke, they are very dangerous.

ALWAYS use, charge, discharge, store and transport LiPos under the assumption that an incident will happen at any time. Take all necessary precautions in all circumstances.

### **Disclaimer:**

*You acknowledge that LiPos are inherently unstable and risky and accordingly may not operate as intended.*

*Individuals use LiPos at their own risk.*

*Ribbon Securities Pty Limited assumes no responsibility and or liability for direct or indirect damages and or losses whatsoever including consequential, special or exemplary which may result from the use LiPos or other products supplied by Ribbon Securities Pty.*

*Use includes but is not limited to storage, charge, discharge, use and transport of LiPos and related products. This includes the use and or operation of the LiPo battery in accordance, or not, with intended purpose.*

## Lipo Use Guidance (Non Exhaustive)

1. Never charge, discharge, use, or store a damaged or puffy LiPo battery. Damage includes minor dents to the battery.
2. Always use a quality LiPo battery balance charger/discharger when charging and discharging your LiPos. It is crucial that all cells in a LiPo battery maintain the same voltage across all cells at all times. If the voltages across the cells deviate, the battery can become unstable and dangerous.
3. Never parallel charge multiple batteries on the same circuit, you increase the risk of fire.
4. Always use the correct fire rated fire proof LiPo safety bag or other fire proof container when you are charging, discharging, or storing your LiPo batteries. It does tend to happen more often when batteries are fully charged, being overcharged, or while being discharged, but it can happen to any LiPo at any time. Never fill the container to capacity with your batteries, always follow manufacturer recommendations on LiPo bags/containers for how many mAh's the fireproof container can safely contain. Use only quality properly rated fireproof containers, boxes or bags, do not settle for cheap knock-off bags.
5. Do not use your flight case/travel case for long term LiPo storage. The foam and plastic in these cases can help spread a LiPo fire. Always use a fire proof container such as a metal ammo box or fire proof safe for storage.
6. Do not discharge, store or charge inside areas where humans or animals reside. LiPo fires are instant, hot, explosive and generate toxic smoke. Charging your LiPo in a home or office can cause substantial damage and may result in substantial damage to property or harm or death to persons or animals.
7. Never leave your LiPo batteries charging while unattended. If a battery starts to become puffy, smoke, or catches fire you need to be able to immediately handle the situation. Walking away for even a moment can result in a disaster.
8. A LiPo fire is a chemical fire. Always keep a Class D fire extinguisher nearby your battery charging/discharging and storage area. The battery

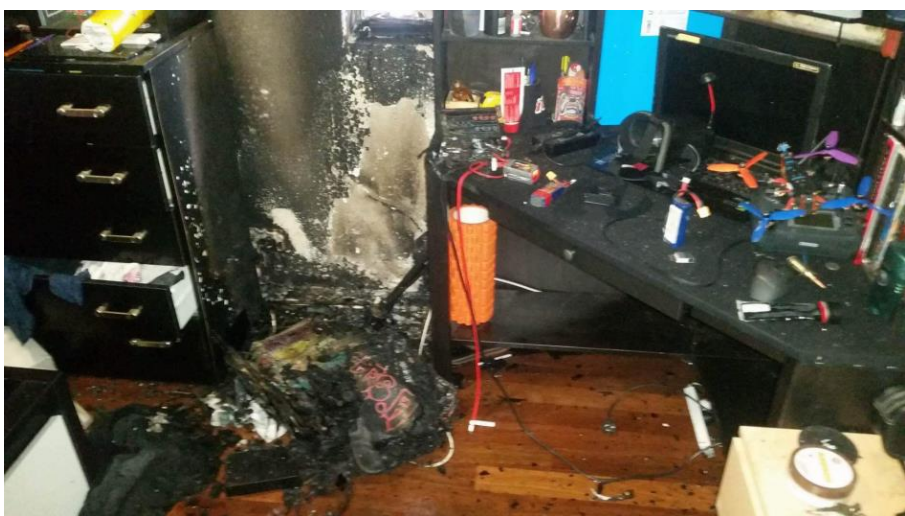
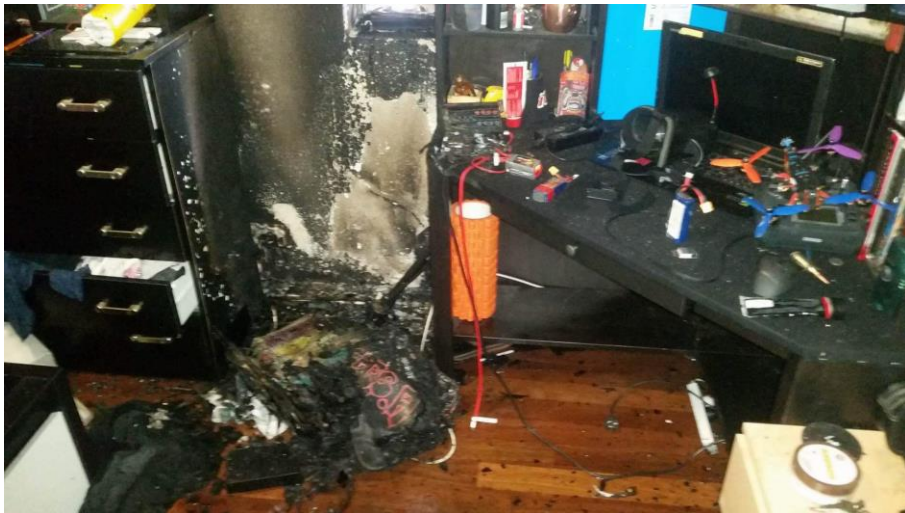
charging/discharging and storage area should be free from any materials which can catch fire such as wood tables, carpet, or gasoline containers. The ideal surface for charging and storing LiPo batteries is concrete or ceramic. Note that a LiPo battery ignition may be explosive causing flames to spread over an extensive area.

9. Never overcharge a LiPo battery. Typically, a full charge is 4.2v per cell, read the battery and charger manufacturer's instructions carefully before use. Never "trickle" charge a LiPo battery.
10. Never discharge a LiPo battery below 3.0v per cell. Ideally you never want to go below 3.2v per cell to maintain a healthy battery. 2.9v per cell and lower is causing permanent damage.
11. Never leave your LiPo batteries sitting around on a full charge for more than 2-3 days. If by the 3rd day you realize you are not going to use your battery today, you need to discharge your battery down to 3.6v-3.8v per cell for safe storage until you are ready to use the battery again.
12. Always keep your LiPo batteries at room temperature. For example, do not store them in a hot car, or in a cold refrigerator. Even though a cold battery has less chemical reaction taking place which can prolong its lifespan, taking a battery out from a cold fridge can cause condensation to occur on the inside of the battery, which can be very dangerous.
13. Always remember that heat is the number one enemy of LiPo batteries. The hotter your batteries get, the shorter their lifespan will be. Never charge a battery that is still warm from usage, and never use a battery that is still warm from charging.
14. Storing your lipo with a full or depleted charge all the time, running them completely dead, or exposing them to high temperatures will shorten this lifespan dramatically.
15. LiPo batteries do not work well in cold weather. The colder it is, the shorter your run times will be due to the slowing down of the chemical activity within the battery. If it is below 14F (-10C), LiPo usage is not recommended at all. Your

battery could cause your R/C vehicle to suddenly fail without warning in these temperatures.

16. Always pack your LiPo batteries in your carry-on bag and never in your checked baggage when traveling on an airplane. Check with your airline before travel.
17. LiPo batteries should never be used or operated in any capacity by a minor/child without suitable adult supervision.
18. Users should familiarise themselves fully with the operation and required safety procedures and precautions prior on the LiPo use and or operation prior to purchase.

*The following pictures highlight the consequence of fire involving a Lithium battery. This was one 1300 mah battery.*



*For more examples see link below:*

*<https://www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=lipo+battery+fire>*