

“What everyone ought to know about buying/selling Power Banks (portable phone chargers), **safely**, but probably don't know to ask.”



Sorry but only way to illustrate actual injuries

This poor lady burned her hand badly when her defective power bank set on fire next to her bed, while she slept: a large quantity were recalled.

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Cases.... just because it looks the same does not mean it is the same inside



The charge control circuit has been burned here in this faulty power bank when it was supposed to save the product from over charging. The very thing that is supposed to save customers from harm from overcharged batteries was too cheaply made... maybe 50 cents worth of higher specification electronics would have avoided this. On cheap power banks, 50 cents can make all the difference.

How power banks come to the US market and who supplies them

Many companies are shipping power banks into the USA for retail and promotional use but of course we are only concerned with promotional companies in this report. Power banks are one of the hottest and most loved promotional products of the last 2 years and as a result many, many traders of promotional goods have started to import them. The problem with these hundreds and hundreds of suppliers is that, of course, they are **mostly not electronics specialists** and therefore do not really understand what it is they are buying. You can see that many suppliers to the industry are multiple product suppliers, bringing in items such as clothing and bags and a hundred other categories. What can they know about charge control circuits? What do they know of battery testing procedures?

This item should be sold by specialists, companies who understand electronics and how to be in control of the manufacturing, not a jack of all trades who has “found” a cheap supplier and then started to import them, but sadly this is the case in the promotional industry at this time for many of the suppliers.

There are many reputable companies who have also fallen fowl to safety problems and been the subject of massive recalls. One well known one **had to recall 172,000 power banks** because it was discovered that the model they imported was overheating and it created a fire. The personal injury risk was apparently so great they had to recall such a massive quantity. Do you think they bought well?

They may be considered unlucky by some, but that is not really true. What they did was take a risk on a product they had little to no knowledge of and little to no control over during the manufacturing process. There are actually very few companies supplying power banks who have any knowledge of or any control at all over the day to day quality control or parts specifications. So what does the distributor of promotional products do to be sure they are supplying safe high quality chargers?

Obviously they should only use companies they know, but more than that, they should establish where that company is buying from, how much control they have over the supply chain and how much they really know about the components being used. That may be too much effort for almost all promotional product suppliers, and it would take up too much energy, time and resources. Of course this does not matter so much with a baseball cap, if they are not sure where the cap was embroidered as long as the client is happy with the stitches in their logo all is well.... but then a baseball cap is not going to overheat and cause injury. The only way they can be sure is to have a personal relationship with a trusted factory. In Dragon Power's case, this means a factory trusted and audited by Disney.

What are the problems?

There are two major technical issues:

A. The Charge control circuit

B. The Batteries

Charge Control Circuit

This part of the power bank is responsible for the charging of the batteries in the power bank and the charging of whatever device is being charged, typically a cell phone.

Our charge control circuits do 4 important things:

1 Overcharging, this is the part of the circuit that senses when the battery is fully charged and then stops it being charged more.

2 Over current, if the charging current is too high, coming from a faulty or incorrect source of power, the charging will be stopped.

3 Short circuit, this detects faults creating a short circuit such as faulty wiring or faulty charging cables being used.

4 Over discharging, this protects your phone or other item you are charging from getting too much charge which can damage the phones battery or other components.

If any one of these functions is not provided, is badly made or simply stops working then, you have potential for fire and even explosions.

Batteries

Exploding batteries were first reported in China after they occurred on various public transportation such as buses and trains. DHL banned the shipment of power banks after a plane caught fire on a runway caused by the faulty cheap power banks,. That, of course, could have been avoided by the use of anti explosion batteries and the correct protection circuits.

There are many manufactures of cheap dangerous batteries and many of those batteries are still being sold in the USA by promotional suppliers and distributors.

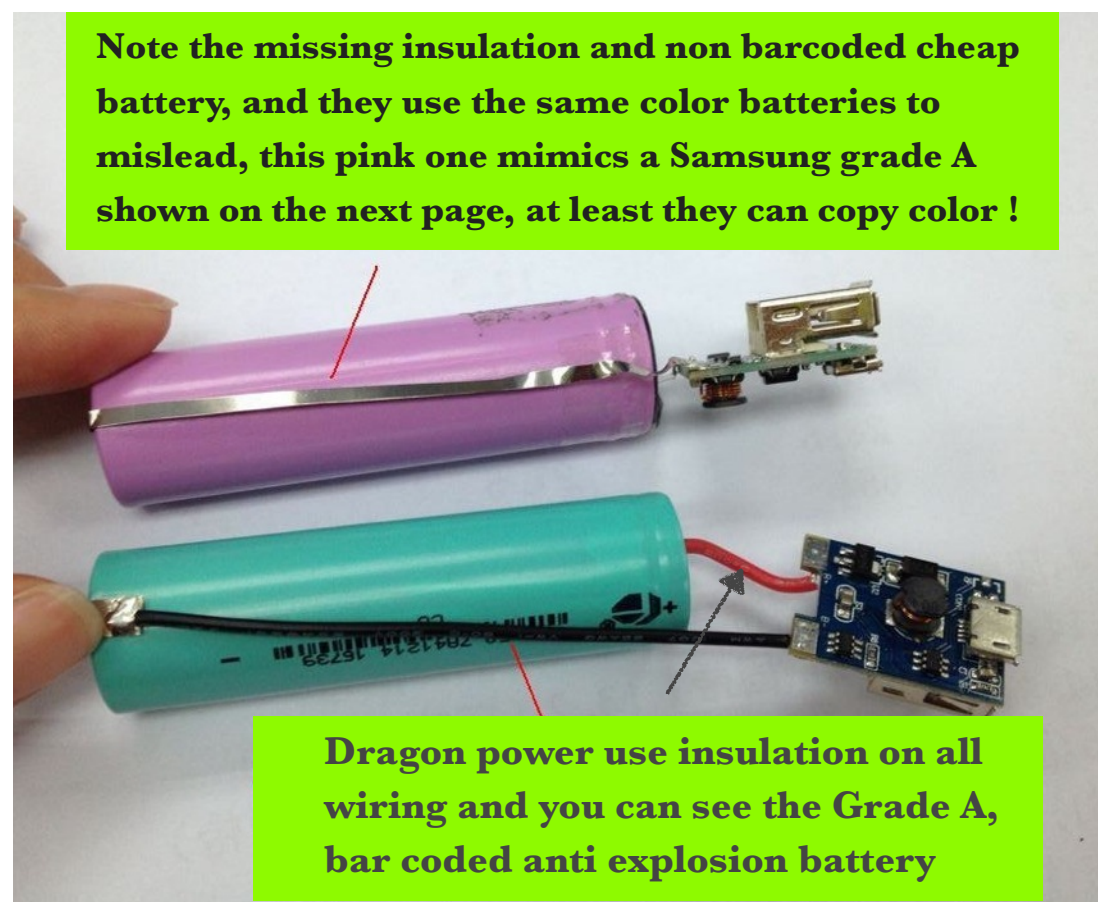
These people, most of them unknowingly, are playing with peoples lives, and most of them who are doing this have created this risk by buying from sources that qualify more on price than quality and safety.

Cheap batteries are one of the most dangerous elements of badly made chargers, more so, in a way, than a cheap control circuit, because it is usually the batteries that explode if overcharged by a faulty charge control circuit. A Grade A anti explosion battery with a fuse under the positive terminal will not catch fire or explode even if the charge controller is not doing its job.

Dragon Power only uses Grade A batteries and only uses the highest quality, individually bar coded batteries for total traceability and accountability from the battery makers.

OUT OF SIGHT OF MIND?

The difference between safe power banks and those that are like a faulty hand grenade that could go off at any time is not apparent when looking at the finished products, the shiny, colorful, nicely printed products can, on the surface, look like the perfect business gift. Of course, on the inside, is a more ugly story.





Samsung Grade A anti explosion battery: Example of what to look for if you can open up a charger sample.

Battery Testing

“Batteries need testing even if they are Grade A. Cheap batteries are never tested.”

Batteries that go into premium products such as the ones made in the Dragon Power factory are tested for capacity, ability to be charged, faults and failures. This is done on large testing rigs shown below and is also known as Age Testing, and at Dragon Power we charge and discharge all our batteries 3 times before they can pass and be used in our power banks.



Age testing machine left, and below a final charge before shipping.





From many conversations with distributors we understand that a lot of chargers supplied in the USA today are failing after one or two charges and do not hold a charge. This could be avoided, by companies wanting to supply the safest and most reliable product, by buying Grade A batteries and then age testing them..... of course, manufactures cutting corners will not do this.

**It may look the same on the outside,
but that is where the similarity ends,
or**

**why are the same looking items a
dollar less from some suppliers?**

Answer: Case makers, the companies who make the casings used by many suppliers, do not make completed power banks, but they do supply many hundreds of power bank makers, this is why you see an identical model from many, many companies.

This is why distributors can be misled into buying dangerous or unreliable chargers.

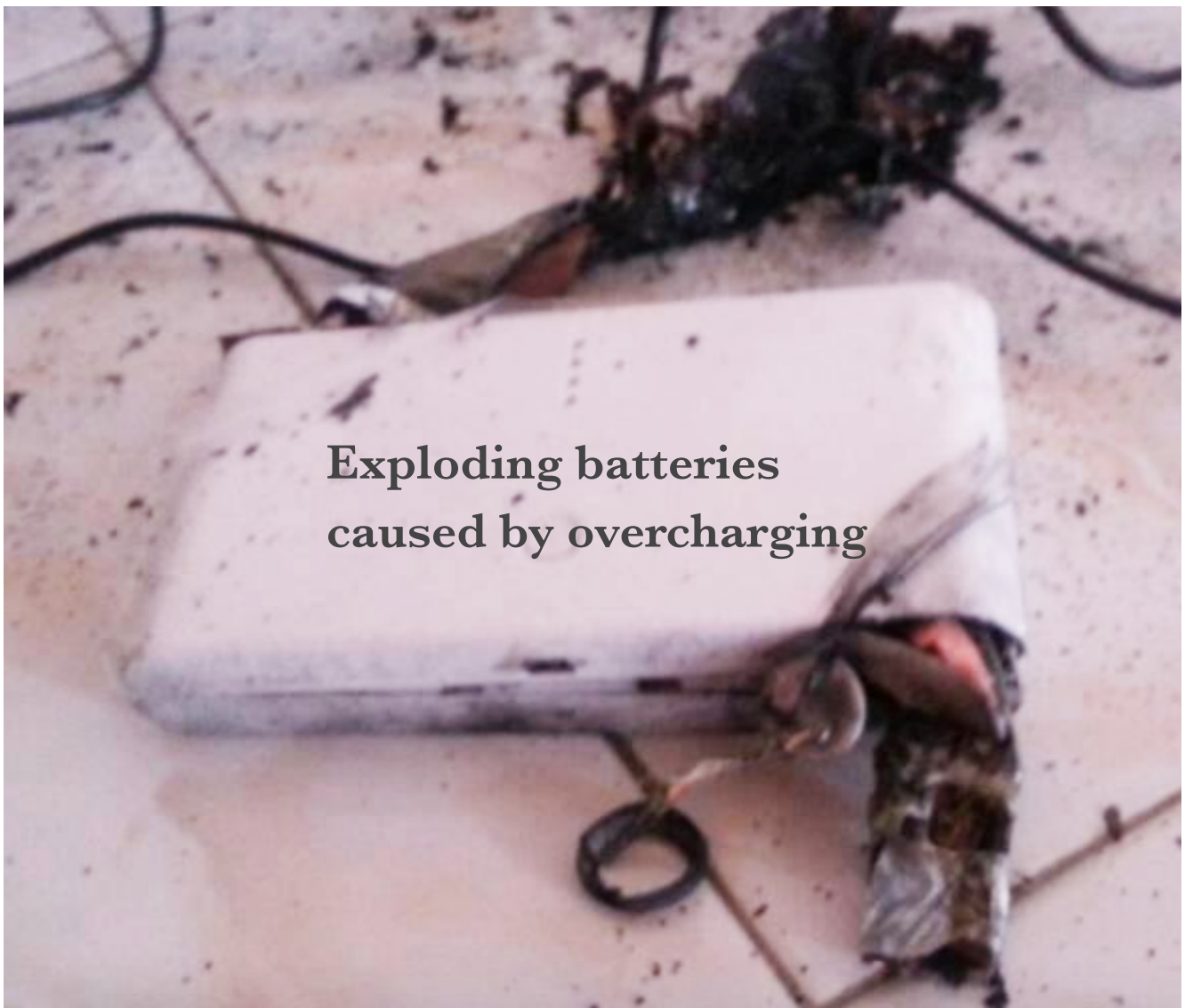
The examples below are available from hundreds of suppliers. They look exactly the same until they fail, catch on fire or explode.

So now you have the facts. Be careful, and buy from trusted sources who have total control over the factory making them. Of course you could simply buy Dragon Power Premium Electronic chargers like so many major distributors.





This is an example of how far some companies are willing to go to make more profit. This charger should have 6 batteries..... instead it has one battery and two bags of sand. Feels correct weight wise but works badly.



Exploding batteries caused by overcharging

A word from the author:

“Power banks are one of the promotion industry’s favourite products right now, distributors love to sell them, marketing people love to put their logos and messages onto them and they truly are one of the hottest, most useful promotional items available. In fact, in my 30 years in this business I have not seen a more well received and useful item.

There really is no reason not to use them to promote any brand. Recipients find them utterly useful and love to receive them. Just be sure about who is making them and to what standards, and you will get a great “ROI.”

Ian Fenn,

CEO

Dragon Power Premium Electronics.