

# Safety Alert

## Battery Explosion

6 November 2019

### Background information

Although not an injury at work the following incident involved an on road Traffic Officer and is being issued for wider learning.

The IP transported 2 AA rechargeable 3000mah Lithium ion batteries in his trouser pocket with a view to replacing spent batteries.

Within minutes the IP felt a burning sensation on his thigh and shortly after his trouser pocket ignited, followed by an explosion resulting in the release of a lithium ion liquid which came into direct contact with the skin on the IP's thigh and migrated down the leg. The clothing from the IP was removed by his partner and the burnt area was drenched with copious amounts of water.

The IP was immediately transferred to A&E and diagnosed with 3<sup>rd</sup> degree burns and will require a skin graft.

### Cause of the injury.

Batteries stored in direct contact with conducting materials, 2 x £1 coins and a metal carabiner clip, this caused fire and chemical burns from the battery fluid



### Research on lithium ion batteries and safe storage.

Lithium Ion batteries can overheat through a process called "thermal runaway.". This can happen for many reasons, such as external heat sources, internal shorts, or other malfunctions in this case the coins acted as the conductive material causing the batteries to overheat and explode.

### Manufacturers provide the following advice on safe handling and storage.

- Always store batteries in a cool and dry place.  
(Between 10 to 30 degrees Centigrade)
- Battery Terminals should always remain covered.  
Whilst in storage
- Avoid battery terminals coming into direct contact with electrically conductive materials, examples being items such as keys, coins, which will cause a short circuit of the battery.