

Application Notes: Defence

There are a wide range of defence applications in service that require batteries; here we concentrate on two examples where a reduction in weight is critical and could provide key advantages:

Case Study: Soldier Systems

Dismounted soldiers have to carry everything with them into battle, including rifle, ammunition, body armour and a wide range of electronic equipment such as radios, electronic countermeasures and bomb detectors. All of this adds up to a heavy burden of 40kg+ for the soldier, which is compounded by heavy li-ion batteries which can add an additional 10kg to carry.

By switching to Li-S batteries, this burden can be reduced on the soldiers, reducing their fatigue and allowing them to operate for longer. An additional benefit that Li-S batteries can provide to the soldier is a safety advantage; OXIS cells have been tested to prove that they do not explode or catch fire when punctured, even when supplying a load. This contrasts with li-ion batteries that have been known to burn when abused.

Case Study: Airborne Systems

Similar to the aerospace industry, reducing the weight of batteries on airborne platforms brings a number of benefits. As a minimum, the weight saved could be directly translated to an increase in payload for the system, increasing surveillance and communications capability, or it could be used to increase the overall flight time.

OXIS' patented chemistry provides inherent safety allowing it to meet international standards concerning shock, crush and short circuit (UN38.3, IEC62133) including:

Overcharge

- C/10 (0.16 A) for 24h. No explosion, no fire, max temperature 53°C.
- Meets IEC62133.

Bullet penetration

- 5.56mm shot at 10m into fully charged cell.
- Cell continued to operate (reduced capacity).

Nail penetration

- Temperature variation + 1.4°C.
- Cell continued to operate (voltage at 98%).

Li-S

