

HANDOUT FOR MANAGING THE PRESENCE AND OPERATION OF PORTABLE SELF-ENERGISED ELECTRICAL/ELECTRONIC DEVICES IN POTENTIALLY EXPLOSIVE ATMOSPHERES (GAS AND DUST)

A. Flow chart for the categorisation of types of portable self-energised electrical and electronic devices





B. Ex-certified devices

Any portable self-energised electrical or electronic device taken into hazardous areas should be selected on the basis of the requirements set out in the Equipment and Protective Systems Intended For Use In Potentially Explosive Atmospheres Regulations 1996, unless a risk assessment finds otherwise. Wherever reasonably practicable to do so Ex certified equipment should be used within hazardous zones and this equipment should be suitable for the zone that it will be used within:

Zone	Equipment category
zone 0 or zone 20	category 1 equipment
zone 1 or zone 21	category 1 or 2 equipment
zone 2 or zone 22	category 1, 2 or 3 equipment

For further information see section 9 of the main report.

C. Non-Ex certified devices assessed as being below the energy level needed to produce an ignition source

Some non-Ex devices may be fall below the requirements of IEC 60079. El research concluded that:

- The use of devices powered by one or two non-rechargeable button cells (e.g. some wrist watches) is unlikely to create an ignition source.
- The radio frequency energy emitted by key fobs energised by one or two button cells is considered not to cause an ignition source.
- The chemistry of rechargeable lithium-ion batteries is sensitive to user mal-treatment and therefore could produce an ignition source.
- Consideration should also be given when assessing the device to other ignition hazards such as mechanical ignition sources.

For further information see section 10 of the main report.

D. Non-Ex devices assessed as being above the energy level needed to produce an ignition source but not presenting a dangerous ignition source

Some non-Ex devices may be assessed as not presenting an ignition source. El research concluded that:

- A risk assessment should consider the specific circumstances including the device, individual, work activity, how the device is used/secured etc.
- Implanted medical devices embodying their own energy source do not constitute an ignition risk under normal or abnormal conditions.
- Worn medical devices powered by one or two non-rechargeable button cells (e.g. most hearing aids) are unlikely to create an ignition source within a potentially explosive atmosphere.
- Worn medical devices incorporating rechargeable lithium-ion batteries could produce an ignition source if exposed to an explosive atmosphere unless they are Ex certified.

For further information see section 11 of the main report.

E. Non- Ex certified devices assessed as being above the energy level needed to produce an ignition source and capable of presenting a dangerous ignition source

Some non-Ex devices may be assessed as being capable of presenting a dangerous ignition source. These should only be used if the risks have been assessed and controlled using an SSOW such that the risks are ALARP. It is highly unlikely that the risks of using such devices on a frequent basis (such as daily) would be considered to be ALARP and it would be expected that suitable Ex certified devices should be used.

For further information see section 12 of the main report.