

e2v Product Types – EIS124, EIS210

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UN 0365 DETONATORS FOR AMMUNITION

Overview

e2v technologies' range of Exploding Foil Initiator (EFI) based detonators has been developed as a safer, more insensitive alternative to Exploding Bridge Wire (EBW) detonators and other explosive initiation devices.

They are safe to transport, handle, commission and use providing the directions contained in this note are followed and safe working practices are used.

Primary explosives are not used in the manufacture of EFI detonators.

e2v detonators are packaged in antistatic foam and contained in UN approved steel ammunition cans of type M2A1 or H83.

Inherent Hazards

Detonators, by their very nature, contain explosive materials or compositions in limited quantities. The e2v technologies range of detonators contains the secondary explosive hexanitrostilbene (HNS) in multiples of 160mg.

HNS has been chosen for its excellent temperature and chemical stability and good aging properties. However, as with all explosives, there is a residual risk of fire and/or explosion that arises from the presence of an energetic material.

HNS typically has a figure of insensitiveness of 82 and is therefore regarded as reasonably sensitive to shock. Care must be taken not to introduce kinetic energy that may exceptionally cause fire or detonation.

EFI detonators require very fast high current pulses in order to function correctly and therefore are immune to electromagnetic signals, including high power radar. It is, however, always good practice to shield detonators from such sources. Similarly, although the risk of unintentional detonation by electrostatic discharge is extremely remote, devices should be protected from electrostatic discharge. The steel ammunition can and antistatic foam pack provide the necessary protection against these hazards, consequently devices should be kept in their packs until point of use. It is recommended that static safe handling methods are employed when handling the detonators.

Operational Hazards

The following hazards must be included in a risk assessment, in order to ensure the operating risks are minimised by the use of appropriate controls and protective measures.

- Mass Explosion – the sudden liberation of large volumes of hot gas and significant metallic fragments travelling at high velocity, together with a significant blast wave.
- Noise – Peak sound intensity at 2 metres from the detonator can be >140 dB(C) for a short time, which exceeds typical peak sound pressure occupational exposure limits.
- Fire – The heat from the explosion and any afterburn may cause fire in nearby combustible material.
- High Voltage – if shipped integrated with an Electronic Safe Arm Unit, voltages up to 6 kV are present within the device when 'Armed'.

Decommissioning

Should equipment containing detonators and detonating systems need to be decommissioned it is of vital importance to ensure that a minimum of personnel are at risk from accidental detonation. Local safety regulations and Explosives Ordnance Disposal (EOD) practices must be adhered to.

As a general rule, power to the detonating system must be removed and the assembly left for such time as to ensure that no stored energy remains as determined by calculation and risk assessment. Wherever possible the firing system reservoir capacitor voltage should be shorted, or measured electrically to confirm that it has been discharged immediately prior to disconnecting the detonator.

Once isolated, the detonator should be removed from the remaining explosive train and recovered to suitable storage. **On no account** should recovery be attempted in the event of misfire or partial function of the detonator except by a trained EOD crew.

Disposal

HNS and HNS-based detonators may safely be disposed of by controlled burning in open air. No more than 50 grams of HNS should be disposed of at one time.

Where users do not have facilities for the safe decommissioning and disposal of the devices, e2v may be able to offer a decommissioning service. Contact your e2v sales office for further information.

An email contact form is available on the e2v technologies website at <http://www.e2v.com/contact-us-on-line>

Important Note: If products containing explosive need to be returned to e2v, a Return Material Authorisation must first be obtained and the products must be returned **only** to e2v Lincoln, 168 Sadler Road, Lincoln, LN6 3RS, United Kingdom (telephone +44 (0)1522 500815). Do **not** return to e2v Chelmsford.

Material Data

Contains lead (as solder)	<1 gram
May contain hexavalent chromium	<0.1 gram
Body material	Aluminium
Stripline	Copper conductor, polyimide insulator

Hexanitrostilbene explosive	see Eurenco material safety data sheet appended to this document for hazards and handling data for hexanitrostilbene (HNS)
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Emergency Contact

If you require assistance in an emergency, please call +44 (0)1245 453220 (24 hours).

Appendix

Eurenco Hexanitrostilbene (HNS) Safety Data Sheet, Edition 6, 15 October 2012.