

Manufacture and Storage of Explosives Regulations (MSER)

(A Summary for Users of Stage Pyrotechnics)

These new regulations have superseded and revoked much of the 1875 Explosives Act and make Explosives Safety Management risk based instead of being entirely prescriptive.

Some fundamentals of the 1875 Act remain, notably a dependence on the relationship between Quantity of Explosive and Distance to Public (QD) i.e. the greater the holding of an explosive and the greater its hazard, the further the distance needed to public buildings, roads etc. It should be noted that the quantities quoted refer to the weight of explosive within a device and NOT the gross weight of the device and / or package. This weight is commonly referred to as the Net Explosive Quantities (NEQ) (synonymous with NEC – Net Explosive Quantity and NEM – Net Explosive Mass).

MSER also introduces the concept of “Hazard Type” (HT) which categorises explosives by the hazard they pose whilst in storage, as opposed to the United Nations transport classifications of 1.4G, 1.4S etc. Hazard Types range from HT1 – Mass explosion hazard (worst case) through to HT 4 – Minor Fire Hazard; at present **all** Le Maitre Ltd pyrotechnics are **Hazard Type 4**.

Unfortunately in the future, as regulations change we can expect certain pyrotechnic articles to be classified even more severely and be given a HT other than 4. Therefore those storing pyrotechnics should be aware of how the QD’s change for differing HT’s, and in different situations.

For example, the table below is an extract from the MSER Approved Code of Practice and shows the distances required between the explosive store and potential sites of vulnerability (External Separation Distances).

External Separation Distances

Hazard Type 4

Quantity of Explosive (Kg)	Footpath Lightly Used Road Waterway (m)	Minor Road Railway Line (m)	Major Road Place of Public Resort Buildings (m)
0.1 - 250	0	0	0
250 – 300	1	1	1
300 - 340	1	1	2
340 – 370	1	2	3
370 - 400	1	2	4

(This table has been simplified; reference to the MSER Approved Code of Practice must be made for full details.)

If a store contains HT1, HT2, HT3 explosives as well as HT4 explosives it is assumed that the whole store behaves as the worst hazard type and thus QD’s for the highest hazard type **must** be used – e.g. one item of HT3 in a store of HT4, renders the whole store HT3!

The Nitty Gritty

- All persons / companies (see below for exemptions) who store explosives **MUST** obtain a license from the local licensing authority (usually Police / Fire Brigade) or the Health and Safety Executive (HSE). If you can comply with the distances laid down in the QD tables and want to store less than 2000 Kg NEQ then a local authority license would be the best option. An HSE licence is only necessary when compliance with the QD tables cannot be made. A list of Local Authority Explosive Liaison officers can be found at <http://www.hse.gov.uk/explosives/elo.htm>
- All persons who store explosives **MUST** store them in accordance with the published QD tables.
- Licences can be refused and revoked.
- All explosives must be kept in the transport packaging they are supplied in.
- No person under 16 years of age may work, in a manufacturing or storage facility.
- Persons between 16 and 18 years of age **MUST** be supervised by a competent person **over** 18 years of age when working, in a manufacturing or storage facility.

Exemptions

A licence to store explosives is **NOT** required when:

- Storing **less than 5 Kg** NEQ of 1.4S (UN0432) ARTICLES PYROTECHNIC for technical purposes.
- Storing **less than 5 Kg** NEQ of 1.4G (UN0431) ARTICLES PYROTECHNIC for technical purposes.

It should be noted that under this exemption, a **total of 5 Kg** of 1.4S (UN0432) **and** 1.4G (UN0431) ARTICLES PYROTECHNIC for technical purposes can be stored at any **one time**. For example if a store holds 3 Kg of 1.4S (UN0432) Articles Pyrotechnic then **only** 2 Kg of 1.4G (UN0431) Articles Pyrotechnic

If more than a combined total of 5 Kg NEQ of these explosive articles wish to be stored then a explosive license **is required**.

As a guide 5 Kg NEQ is equivalent to:

41 boxes of Large Theatrical Flash **or** Large Silver Star (12 devices per box)

or

28 boxes of Long Duration Minigerbs (12 devices per box)

or

115 boxes of Silver Jets (12 devices per box)

or

83 boxes of Large Silver Airbursts (12 devices per box)

For further Information

Manufacture and storage of Explosive Regulations. <http://www.opsi.gov.uk/si/si2005/20051082.htm>

Manufacture and Storage of Explosives Approved Code of Practice (Published by HSE Books - ISBN 0-7176-2816-7)

<http://www.hse.gov.uk/explosives/information/manufacturestorage.htm>

<http://www.hse.gov.uk/explosives/information/licencereg.htm>