

### LSZH vs LSF or PVC

Acronyms for low smoke zero halogen / halogen free include LSZH, LSHF, LS0H & 0HLS.  
All these terms are interchangeable but we will use LSZH in this document.

LSZH cables are increasingly recommended for use in public buildings for increased fire safety in comparison to traditional PVC (polyvinylchloride) sheathed cables.

LSZH is often confused with LSF (low smoke & fume) but they are really very different!

#### PVC cable:

Standard PVC is made up of a significant number of halogens which when burnt produce toxic gases including hydrogen chloride (HCL). Hydrogen chloride is extremely dangerous and corrosive, capable of causing serious harm to people and equipment. It can even be compared to mustard gas which is used as a chemical weapon. Standard PVC can produce around 28% HCL emissions if burnt.

#### LSF cable:

The term LSF only indicates that the cable offers reduced smoke emission / fire propagation compared with standard PVC, often cable sold as LSF will just have a modified PVC sheath. There is no standard governing the HCL emissions of LSF cable but it will often produce between 18-22% HCL emissions when burnt which is still extremely hazardous.

#### LSZH cable:

The term zero halogen (interchangeable with halogen free) guarantees that if burnt the cable will produce less than 0.5% HCL (hydrogen chloride) emissions. The standard sheathing material is fairly tough & flexible with resistance to a wide range of oils & chemicals.

Confusion sometimes arises due to the number of different terms in use within the industry for LSZH and the similarity of these terms to LSF. To add to this some manufacturers of cables that are actually LSZH describe and even print them as LSF. This is particularly common in BS6724 armoured power cables but also occurs in BS5308 and other cable types.

Another common misunderstanding is that LSF or LSZH cable is also flame retardant or fire resistant, this is not necessarily the case and should be established separately if required. The term "flame retardant" indicates a cable that will inhibit or slow the spread of fire. The term "fire resistant" indicates a cable that will continue to operate in the presence of a fire. There are several recognised standards for flame retardance and fire resistance in cables.

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