



Question: What is the difference between PVC and LSZH CCTV cables?

Answer: Low Smoke Zero Halogen (LSZH) cables help comply with building regulations by producing only small amounts of light smoke if burnt in the event of a fire.

The European market is demanding that all cables used in LAN & WAN networks to be **Low Smoke Zero Halogen* (LSZH)** cables. The IEC 60332-1 specification is the Flame Retardant Grade specifications in reference to LSZH cables. Essentially, it aims to reduce the amount of dangerous/poisonous gases in the compound used to manufacture cables in the event of a fire.

“The primary danger associated with fire in its early stages is not flame but the smoke and noxious gases... They cause most of the casualties and may also obscure the way to escape routes and exits. Measures designed to provide safe means of escape must therefore provide appropriate arrangements to limit the rapid spread of smoke and fumes.”

Part B, Section B1.iv of the Building Regulations.

Today virtually all medium and large installations in Europe must meet the IEC specification.

What’s the difference between PVC and LSZH cables?

	PVC (Polyvinyl Chloride)	LSZH
Texture	Soft & smooth.	More rigid due to fire resistant compound.
Emissions	Heavy black smoke.	Light grey smoke.
Visibility when burnt	Reduces visibility by 50% within 10 mins - 90% within 30 mins.	EN 60684-2 stipulates visibility should not be reduced by more than 40%.
Toxicity	Highly toxic (inc: up to 30% Hydrogen Chloride).	EN 50267-2-1 stipulates amount of Hydrogen Chloride (HCl) must not exceed 0.5%.
Symptoms	Irritation of throat/difficulty breathing if inhaled. Permanent damage to corneas. Burns/ulcers.	Greatly reduced risk of symptoms due to miniscule amounts of HCl.
Cost	Approx 15% cheaper than LSZH.	More expensive than PVC - but much safer in highly populated buildings such as flats & offices.

In summary, LSZH cable greatly increases a person’s chances of escaping a burning building. The reason it reacts so differently when exposed to fire is the absence of PVC. The outer sheath and conductor insulation are often made from polyethylene which contains little chlorine, and low chlorine means low HCl.

What is LSF cable?

Low Smoke & Fume (LSF) is also manufactured using PVC compounds. The amount of PVC is modified to varying degrees dependant on the manufacturer’s choice, but generally it still produces fairly high volumes of dense black smoke and HCl emissions. There is little by way of standards to dictate what the emission differentials between LSF and PVC cables should be.

To be safe, always use LSZH cables which are manufactured to BS EN 50525-3-11. This British Standard is specific to LSZH flexible cable and incorporates all the necessary tests.

*Also known as **Low Smoke Halogen Free (LSHF)**

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