

Difference of LSF and PVC

Introduction

Many different terms are used in the cable industry when referring to Low Smoke Halogen Free cables like HFFR, LSZH, LSF, OHLS, ZHLS etc. This often leads to confusion in the market. The main source of confusion is around the term LSF (Low smoke and Fume). It is often assumed that the LSF acronym refers to Low Smoke Halogen Free cables, this is not the case, it was originally applied to special grades of PVC cables and it should not therefore be assumed that these cables will be safe to use where the protection of people and equipment is critical.

LSF vs PVC

When PVC burns it produces poisonous gasses, mainly hydrogen chloride (HCL). When HCL combines with moisture it forms hydrochloric acid presenting a clear threat to life, electronics, metal surfaces and even buildings. For certain types of public and commercial buildings regulations now specify the use of zero halogen cables, this type of cable is designed to facilitate evacuation by giving off less black smoke which will obscure exit routes in the event of a fire. Low smoke halogen free cables also combat the threat of death by choking on dense fumes as well as reduce the likelihood of acidic gas damaging electronic equipment.

Ordinary PVC emits approximately 28% HCL, but manufacturers can brand their cable as 'LSF' as long as it gives off reduced emissions as there is no standard governing the HCL emissions of low smoke and fume (LSF) cable, as LSF is still a PVC cable it will give off amounts of black smoke and hydrogen chloride gas during combustion.

Given there is no standards specifying LSF cables there is also important to confirm the fire performance level of the cable you are purchasing.

At B3 Cable we are committed to follow international recognised standards and are therefore offering PVC sheathed cables according to BS EN 50290-2 with a fire-retardant level to IEC 60332-1. If the application requires a lower level of toxic gases, we are pleased to offer our HFFR/LSZH (Halogen Free Flame Retardant) range which complies to IEC60332-3-24, IEC 60754-1, IEC 60754-2 and IEC 61034-1 and will not emit more than 0.5% HCL.

Please remember that a LSZH/HFFR product is far superior compared to both PVC and LSF products when it comes to the safety aspect for humans. In most countries in Europe it's not allowed to install PVC based cables into buildings any longer.