

Technical Note

TN32: The Impact of Fire-stopping Materials



There are no documented national or international tests for the impact of sealants on a communications cable. Nor are there any definitive statements within the standards, apart from reference to local regulations as highlighted in the following text from BS EN50174-2:

'The re-instatement of the fire rating of fire barriers in accordance with local regulations shall be implemented using the specified fire-stop materials and/or fire-stopping techniques.'

This technical note is intended to provide useful guidance.

There are two key risks when using firestopping materials around IT cables

1. Chemical reaction between the cable sheath and the sealant
2. Increased pressure on the cable sheath from the seal

The impact on performance may not be apparent during testing prior to system handover but it could become an issue later in the life of the system.

The main function of the sheath of a twisted pair cable is to maintain the geometry of the pairs within. Not only are the pairs twisted but the performance is achieved by twisting all 4 pairs as a bundle within the sheath in a specific manner. Some cables also have an inner separator between the pairs. Any crushing or pressure on the cable will change the performance.

Mechanical systems can crush cables if not installed correctly. At the same time, sealants can contract and pressurise cables as they 'cure' and dry out.

To ensure that there is no impact on the 25-year warranty provided by Excel Networking we suggest the following actions:

- Specification sheets should be provided with the proposed firestopping product along with the detailed installation instructions to ensure the correct actions are carried out to prevent the aforementioned damage.
- Each sealant proposed should be assessed on an individual basis and it is recommended that assurances are gained from the sealant manufacturer that their product will not detrimentally impact the cable.
- Any damage caused to cables due to not following the installation instructions correctly as provided by the manufacturer of the fire-stopping material or system will result in all affected cables having to be replaced.
- After any corrective action, all links affected must be tested in line with Excel Installation Guidelines.

From experience, there are a wide range of suitable products on the market from the following list of reputable manufacturers*:

- Hilti
- Hillmoore
- H.S. Firetherm
- Rockwool
- Everflex
- Fischer
- PFC
- Knauf
- Firepro

* This is not an endorsement or guarantee of individual product performance.

This Technical Note has been produced by Paul Cave, Technical Manager, on behalf of Excel

Excel is a world-class premium performing end-to-end infrastructure solution - designed, manufactured, supported and delivered - without compromise.

www.excel-networking.com

