Development of an alternative solution to mica tape for fire resistant cables

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Until recently fire resistant cables used mica tapes as the fire resistant insulation material. The problem with this design was that mica tapes were very brittle and may break during normal handling of these cables. Therefore to improve the mechanical properties a small polymeric layer was extruded over these tapes.

Recent developments have taken place that include the combination of these two layers into the one tape and the removal of the extrusion process covering the mica tapes. This paper will demonstrate, with examples, the advantages of these tapes as compared to the conventional construction using mica tapes in terms of:

- Ease of handling
- Improved mechanical properties
- No mechanical damage of the screen during handling and
- Improved fire performance.

Currently these tapes are mainly used for low voltage cable applications, but tests are ongoing to use these tapes for medium and even low, high voltage cable applications where fire performance is required.

Fig. 1: Picture of a small cable sample undergoing fire testing