

August 12, 2015

**Polyurethane Foam Insulation and PVC Cable.**

Dear Steve

You have asked if there is any compatibility issues when PVC cables and Building foam insulation are in contact with each other.

The common insulation in NZ has been Polystyrene, GCNZ has analyzed the performance of PVC cables in contact with polystyrene. We have not conducted any long term testing on the impact of Polyurethane foam and PVC insulated cable.

The negative impact of PVC with Polystyrene foam is well understood however the chemical structure of polyurethane is different from that of Polystyrene.

Polystyrene in contact with PVC will quite rapidly absorb Plasticizer from the PVC. Noticeable changes such as the Polystyrene being sticky can be observed within a few months or less. Over a period of time this can lead to the PVC becoming less flexible and eventually lead to cracking if sufficient plasticizer is lost.

Plasticizers will not migrate into Polyurethane. Therefore there is no observable deterioration to the sheath.

In the USA polyurethane foams are commonly used as a building insulation material and the ingredients in the PVC cable formulations of the USA are similar to NZ cable formulations. So I would expect a similar performance for NZ made cables in contact with polyurethane foamed insulation.

Yours Sincerely



Andrew Stewart  
Laboratory Manager