

Electrical Cabling contacting Polystyrene Insulation

September 2016

Last month, Queensland Government's Electrical Safety Office released an 'eSAFE Publication' detailing the effects of polystyrene based products coming into contact with certain types of electrical cabling.

This particular article explains that TPS/PVC cable insulation can be compromised by a chemical reaction if it is in contact with polystyrene.

Jason Plant from Caravan Trade & Industries Association of Queensland along with James Field representing Caravan Industry Association of Australia met last week with the Director of Electrical Safety Compliance in Queensland to gain a better understanding on this issue and how it may impact on the caravan industry.

The eSAFE Publication explains that *"the plasticiser in cable insulation PVC to make it flexible and tough is not chemically bonded to the PVC and will slowly leach out of the cable over time. The process of cable losing plasticisers increases when the cable is in contact with other materials, such as polystyrene and polyurethane. **The leaching of the plasticiser will cause the cable's PVC material to become harder, more brittle and prone to cracking. This could mean live conductors will be exposed, and possibly result in electric shock or fire.**"*

"One significant factor that affects the rate of leaching is the size of the contact area between the cable and polystyrene. The larger the contact area, the quicker the rate of plasticiser leaching out. The rate of the cable's deterioration will vary with the installation conditions."

Recommendations

The Electrical Safety Office recommends that Recreation Vehicle manufacturers, repairers and installers *"select a cable with protective sheath material that the [cable] manufacturer [or supplier] confirms can be installed in contact with materials such as polystyrene and polyurethane. Alternatively, cables should be installed so there is no direct contact between the cable and polystyrene. If installing cables that haven't been proven suitable for direct contact with polystyrene or polyurethane, either:*

- *install the cable in a suitable conduit;*
- *leave an air gap between the cable and the polystyrene; or*
- *apply a suitable barrier between the cable and the polystyrene*

For existing installations, if you are conducting work in an area where you identify a cable in contact with materials such as polystyrene and polyurethane, check to see if the cable has become hard and brittle. If it hasn't become hard or brittle, consider actions to remove the contact. If the cable has become hard and brittle, replace it."

Caravanning QLD encourages its members to consider this information and take the appropriate steps as necessary. Any questions in relation to this article please contact our office on (07) 3862 1833.