

Long-term Exposure of PMA Conduits to Weathering

PMA subjects all its products to extensive testing, to show their suitability for various application areas. One of PMA's strengths is in raw material development to withstand the effects of weathering.

(Exposure to Sunlight, temperature changes, rain, snow, hail, etc.)

In addition to various accelerated test procedures, such as Xenon Arc UV radiation testing PMA has had a long-term weathering test running on the roof of their manufacturing facilities for over twenty five years now.



The following pictures show samples of various types of PMA polyamide conduit mounted on fixtures on the roof of the building. The deterioration of the wooden mounting plates themselves and the moss growing on them are an indication of the duration of exposure.



The samples on the wooden boards have been exposed to weathering for approx. 15 years.

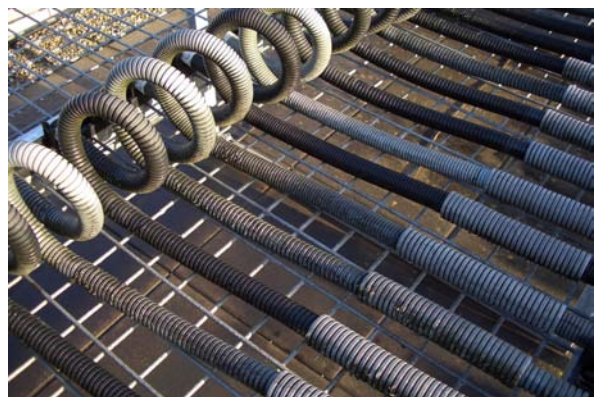


The other test specimens were also originally mounted on wooden boards but after more than 20 years of exposure to the elements the boards had deteriorated to such an extent that the product samples had to be remounted. The second time they were mounted on to a steel frame using clip.

The temperatures in Uster sink regularly to -10°C overnight in winter, -20°C on occasions and in summer >30°C is common. On the unprotected roof there is regular rainfall, often snow occasionally hail and up to 14 hours direct UV exposure in summer.

A second larger diameter shorter piece of conduit is mounted on top of some test samples preventing exposure of a section of the specimens to weathering. This allows visual comparison of exposed and protected material.

There is some discolouration of the Polyamide conduits visible, particularly the grey samples but no significant deterioration of the material has occurred.



PMA generally recommends black products for outdoor installation as they are less sensitive to UV. Also PA12 compounds are more resistant to weathering than PA6 based material. The specially modified PA12 conduits are in immaculate condition but even the PA6 types have resisted the years of exposure extremely well, showing only minor loss of gloss and colour on the surface.

The next pictures show an electrical installation on the roof of the PMA building, it has been on the roof since the building was constructed in 1995. It's not part of the exposure test but the deterioration of the foam rubber insulation material illustrates what can happen to inappropriate plastic materials under the influence of weathering.



The test continues...

How will they look after another twenty five years...

PMA welcomes visits to their facilities and gladly demonstrates the ongoing test on the roof of the company building to interested customers.

Standardised tests in accelerated weathering chambers for life-time prediction can be performed upon customer request. Please inform us of the desired test procedure so that we can confirm product performance.