

OVERVIEW

The purpose of this technical note is to discuss the ultraviolet (UV) stability of black and colored PVC jacketing compounds.

BACKGROUND

Polyvinyl chloride jacketing compound is susceptible to degradation under ultraviolet radiation unless suitable additives are incorporated in the finished compound. The mechanism of degradation due to exposure to sunlight is the deterioration of polymer bonds. The useful life of a PVC jacketing drop cable depends on the efficiency of the UV blocking agents used and the intensity and duration of sunlight to which the cable will be exposed. The most effective UV stabilizer is carbon black, which provides black PVC with its outstanding weathering and UV resistance. Natural PVC which would be used to make various colored jacketing requires different stabilizers to achieve similar UV resistant characteristics as black PVC. Compatible color concentrates, which are

also UV resistant and acceptable for outdoor use, and not reactively destabilizing to PVC formulations, must be used to manufacture UV stable acceptable colored jacketing.

UV TEST METHOD

The most common test used to evaluate UV resistance of cable jackets is UL 1581, paragraph 1200. This test generates high intensity UV light via carbon arc illumination and also incorporates a water spray at 60° F to simulate weather conditions. The test is continued for a period of 30 days (720 hours) and the criteria of 80 percent minimum retention of initial tensile and elongation are considered acceptable for cable television and other outdoor applications.

CONCLUSION

Times Fiber Communications uses only UV stabilized PVC on their drop cable products with black and colored jackets. All color pigment systems employed to color the end product are also UV stable and acceptable for outdoor use.