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Cable Ties
Application Guide No. 2
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APPLICATION ENVIRONMENTS:

Exposure to Ultra-Violet Light

Performance of cable ties and their associated fixing devices constructed of polymeric materials can be adversely affected by exposure to ultra-violet (UV) light. The most common form of exposure is from direct and indirect sunlight.

UV exposure eventually results in material oxidation, diminishing the performance characteristics of the material. A wide variety of cable tie products made from UV resistant materials are available that prolong the life cycle of the product. These solutions range from common UV modified polymers to specialized materials.

Manufacturers are often asked: "What is the life expectancy of a cable tie when exposed to sunlight?" This is a difficult question to answer because of the variety of applications and other variables. Cable ties that are molded from UV resistant materials have consistently met the reasonable expectations of a wide variety of users in diverse applications. A cable tie made from a material without UV resistant properties should however, not be relied upon where safety or longevity of service is a consideration in its application.

Some materials used to mold cable ties and associated fixing devices have declared resistance to UV light. This resistance has either been determined by testing conducted by the material manufacturer or through independent third party test laboratories. The present standards for cable ties require additional testing for resistance to UV light conducted on the completed product. Although there are different exposure methods that can be used to represent actual sunlight exposure, the xenon-arc light source is increasingly recognized as providing the closest representation. The xenon-arc light source exposure method is found in ISO 4892-2 (method A) which is essentially harmonized with ASTM G 155 (Method 1). The test for cable ties consists of 1000 hours of continuous exposure to this light source, and intermittent exposure to water spray. Following this UV light exposure, cable ties and fixing devices are subjected to mechanical tests to determine any degree of degradation.

Another question that is often asked of manufacturers is: "Are black colored products the only ones that are resistant to ultra-violet light?" The simple answer is no. Carbon black has often been used to provide UV resistance in polymeric materials, thus the perception that black cable ties are the only ones that are UV resistant. However, there are black color cable ties that do not have proven UV resistance. Today there other UV absorbing pigments, allowing for cable ties of other colors besides black.

How do you identify if a cable tie or fixing device is UV resistant? NEMA member companies provide clear marking on their packaging to reflect that the product is "UV resistant", or equivalent wording. An example would be products marked for "outdoor use".

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The manufacturer should always be consulted if there is a question about the proper application of a cable tie or associated fixing device.

NEMA members provide high value, consistent quality, safe and efficient use for cable ties and their associated fixing devices that meet the expectations of a wide variety of users. Visit us at http://www.nema.org/prod/be/cable-ties/ for current information on our industry and for the names of NEMA member cable tie manufacturers.

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