

CnC Tech

Industrial Cable and Connector Technology

Storage and Use instructions of Cable Ties

Shelf life of cable ties is a function of the environment in which they are stored.

Perfect storage conditions for a cable tie are 70F(23°C), and 50% RH, packaged in the manufacturer's original sealed bags. A cable tie will remain supple as a result of the stable temperature and RH in this environment. Shelf life will be reduced by temperature and humidity extremes, as well as by any break in the sealed bag.

Most brittleness problems with cable ties are caused by temperature extremes with very low humidity.

When cable ties exit the mold, they are in a dry and brittle state. In order to give ties flexibility and suppleness, moisture is added by placing water in a sealed bag with the ties. Nylon 66 is hydroscopic, i.e. it has the ability to absorb moisture, up to 8% by weight. Good cable tie practice is to add 3.5-4.5%.

Just as nylon 66 absorbs moisture, under cold and dry conditions the moisture seeks to migrate from the strap. Sealed plastic bags are used to retard this process, but the bags are not a vapor barrier. Eventually, under these conditions, the tie will return to its "as molded" (i.e. brittle) state. This is true of all nylon 66 ties produced by the various cable tie manufacturers.

Virtually all brittleness problems occur in outdoor applications in very cold weather, or where cable ties have been stored for long periods in an unheated warehouse. The tie breaks as it is being flexed. Once ties are placed around a wire or cable, they are virtually immune to brittleness.

Aging has no effect on cable ties, except for aesthetic. Natural nylon ties tend to yellow with age, but the effectiveness of the tie is unaffected by the change in coloration. (If this is a concern, you could use a colored cable tie.)

Suggestions for an engineering standard would be:

- (1) Cable ties should be stored in the manufacturer's original packaging until ready for use.
- (2) Cable ties should not be stored in an unheated warehouse.
- (3) Cable ties inventory should be rotated frequently.
- (4) Cable ties should be used within one year of purchase.
- (5) Partial Cable tie bags should be closed or sealed if at all possible.
- (6) Cable ties should not be over tensioned when installed. (Over-tensioning actually weakens the tie).