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How do Heat Waves Effect Loops?

BD Loops Takes a Closer Look at Heat Waves and Loops

The recent heat wave across the US has caused us to pause and look at the design of our preformed loops. "How would our loops hold up in this heat?" we asked ourselves. Also "How would loops hand wrapped with TFFN/THHN wire perform in this heat."

We tested a popular wire used to wrap loops: TFFN 18 Gauge wire as shown below:

18AWG TFFN Wire

Unfortunately, many installers do not realize the above wire is not rated for direct burial applications and still wrap loops using TFFN/THHN wire. We submerged the wire under water and heated the water slightly. As the temperature of the water slowly increased the insulation began to fail and loop quickly shorted (with a reading below 20 MegΩ). On a normal windless summer day asphalt can easily reach temperatures of up to 160° F in direct sunlight, which is hot enough to cause a loop wrapped with TFFN/THHN to fail. This problem is very hard to diagnose because the failures will be intermittent, only occurring while the surface is hot. Oftentimes an installer will get a call about a gate staying open or not functioning properly and when they get out there to look at the system the

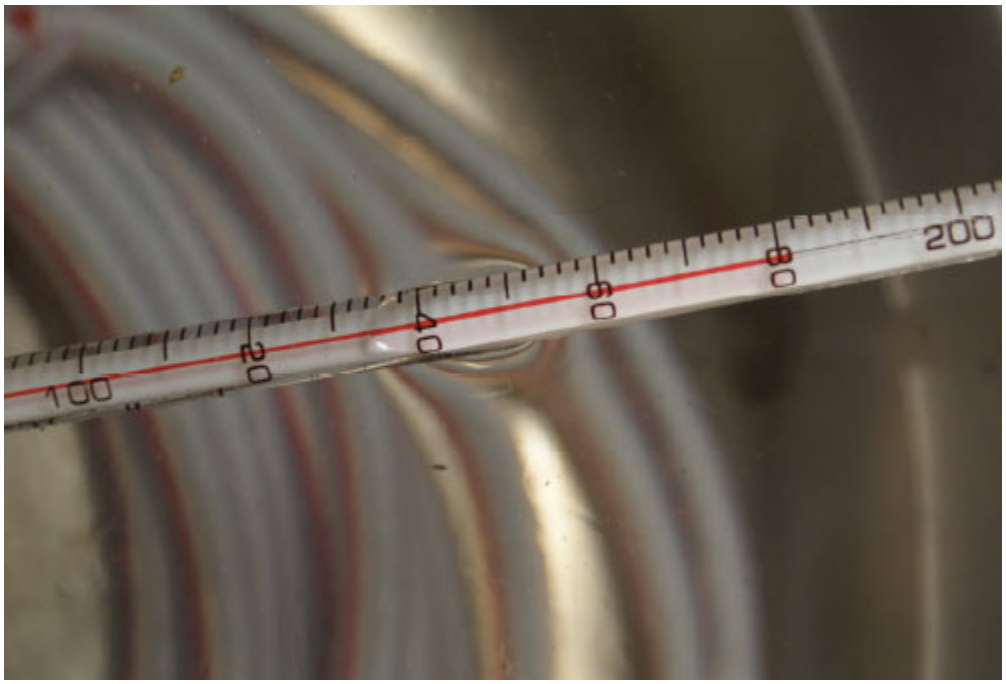
surface will have cooled and the loops will be functioning again. The installer will meg the loop and see that it is working properly and end up wasting time and money working on other parts of the system.

TFFN Wire

The heat wave affecting most of the US has been unrelenting, and a lot of work is going to be done on loop systems during this time. Unfortunately many loops wrapped with TFFN/THHN wire are going to need to be ripped out and replaced. We hope that this test will help you troubleshoot gates with intermittent problems during this heatwave, look carefully at the wire the loop is made out of, if it's TFFN/THHN you will likely need to replace the loop to get the system functioning reliably again.

Our Saw-Cut Loop Heat Test

We like to think that we hold ourselves and our product to the highest standard, so we repeated the experiment with our Saw-Cut Loop, and increased the temperature of the water substantially to over 180° F.



Our Loop in 180° water, designed with a tough polyethylene insulation the wire doesn't fail to the heat.

Our Preformed Saw-Cut and Direct Burial Loops have a tough outer jacket, we understand loops will need to work in harsh conditions and we have done our best to make sure our loops always preform their best. Loops are subject to heat any in application, especially in areas where summer temperatures reach the high 80s and above. We took temperature into account when designing our preformed loops, since loops should be able to withstand normal weather conditions.

Our loop reading over 2000 MΩ, even under such extreme conditions.

We're glad that our loops are able to survive high heat, and can prevent installers from having to replace the most time and labor intensive component of a loop system.

Sincerely,

Brian Dickson, CAGOI
General Manager
BD Loops