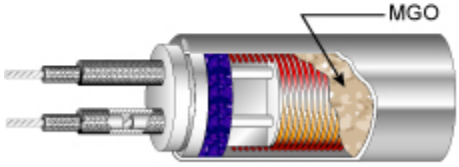
Summer Time Cartridge Heaters Failure

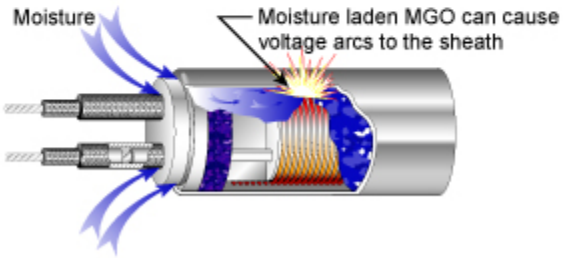
This months Tech Tip is about the most common type of summertime heater failure. We hope it helps. And here's a little fun fact for you: The term "dog days" has nothing to do with dogs. It dates back to Roman times, when it was believed that Sirius, the Dog Star, added its heat to that of the sun from July 3 to August 11, creating exceptionally high temperatures. The Romans called the period *dies canicular* or "days of the dog." So cheer up, at least the dog days of summer are over for this year!

Summer Heater Failure

With summer in full swing, you may have noticed more than normal heater failure on startup. This article discusses the problem and provides valuable information to fix it.

Understanding the Problem: Factories are hot and in many cases very humid! This means there are potential problems for heating elements. The electric insulator in heaters, usually MGO (magnesium oxide), has a tendency over time, to absorb moisture from the air. This occurs most often during down time on machines in damp environments or during long storage periods in stockrooms. When full voltage is applied to a moisture laden heater, fuses blow, circuit breakers trip and voltage arcs to the sheath and destroys the heater.





Minimizing The Problem: If possible it is best to store your heating elements in a humidity controlled area. It is also advisable to spot check elements before placing them into service.

Testing For The Problem: Moisture levels are measured by a Meg-ohm meter and can range from zero to infinity which is generally thought to be greater than 5,000 Meg-ohms as measured from the terminals to the sheath or casing.

Solving the Problem: Most manufacturers like to ship heaters at infinity . At a minimum, we recommend 10 Meg-ohms. At 10 Megs the elements are about 99% dry. If excessive moisture is detected in an element, you will want to take steps to remove it before applying power. This can be accomplished by placing the heaters in a 250 Deg F. oven. Most bake out times can be satisfied in 1-24 hours. Heaters with special end seals may take longer.

Another method for removing moisture is to run the heater at 1/2 voltage. This can work well, but may take 12-24 hours and Meg readings should always be taken before applying full voltage.

One of the relatively new devices on solid state controllers is a soft start feature. This is an excellent choice. Soft start applies varied voltage over time to slowly bring the heater up to temperature.

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