Why Is Static a Problem on Fiber End-faces?

Sticklers CleanWipe Singles can be used in harsh environments with the Cleaning Fluid to get perfectly clean connectors under the most challenging circumstances.

Static is an insidious actor when it comes to fiber optics. It comes from friction. Anytime two different materials are rubbed together there is a transfer of surface electrons that creates a static charge. The technical term for this event is “triboelectric charging.” This static charge turns the fiber optic end-face into a microscopic magnet, attracting dust out of the air right on to the heart of the end-face. Triboeclectric charging will occur when rubbing any nonconductive surface with any dry wipe such as a CLETOP, a foam swab, or a dry fabric wipe.

Common sources of static charge caused by contact friction in optical networks include:

♣ Dry wipe cleaning

♣ Insertion of inspection scopes and test gear into adapters

♣ Connector mating

♣ Equipment cooling fans and fans in the HVAC system

A common cause of static charge is using a dry wipe to clean connectors in low-humidity environments. Dry particulate has a very sly manner of moving on to fiber end-faces and causing network problems. For example, an operator will clean and inspect an end-face and see a pristine end-face. Then, the operator returns at a later date and finds troublesome dust particles on the end-face. How can this happen? Particles are attracted by the static and migrate towards the contact zone of the ferrule — exactly where it can cause the most problems. Because the static turned the end-face into a magnet, it just sucks particulate out of the air.

The problem is the process, not the particulate. The proper answer is wet-dry cleaning, proven by IPC and iNEMI to deliver better cleaning on fiber end-faces.