PowerGuard® Medium Voltage Insulation Resistance Testing

BACKGROUND

It may be necessary to verify that the conductor insulation integrity has not been compromised, either due to handling and installation or use. For shielded extruded dielectrics cables rated 5 kV to 46 kV, an insulation resistance test (sometimes known as a “Megger” test) is used. This test, when performed properly, will not cause any undue electrical stress on the conductor insulation. This type of a test is a “GO” or “NO GO” type of test.

PREPARATION

To facilitate an insulation resistance test on the conductor insulation of MV cables, a separation between the conductor and insulation shield larger than a standard square cut provides is needed. To provide an adequate separation between the conductor and ground, both ends of the cable should be prepared as follows:

1) Approximately two (2) inches of jacket should be removes, exposing the concentric neutral.
2) The exposed concentric neutrals should be unwrapped and bound together
3) Approximately one to one-and-a-half (1 – 1.5) inches of the insulation shield should removed.
4) It is not necessary to exposed the conductor, a standard nail may be used to facilitate connection to the conductor

Figure 1: Cable As Received

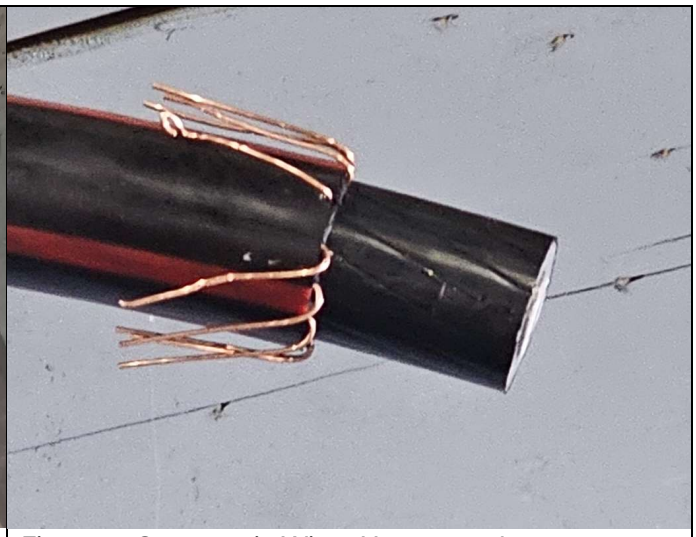

Figure 2: Concentric Wires Unwrapped

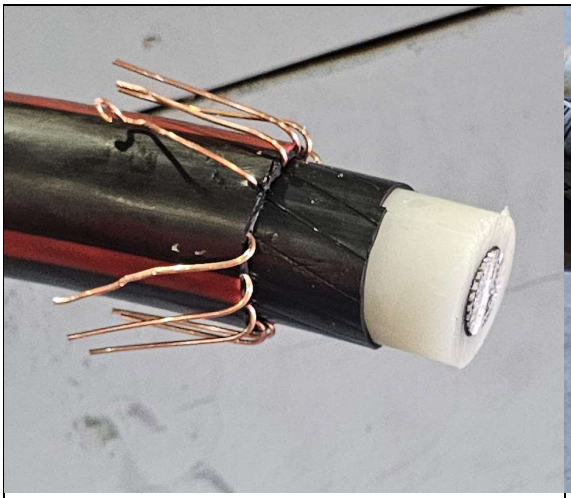

Figure 3: Insulation Shield Removed

Figure 4: Concentric neutrals bound and test connections

PowerGuard® Medium Voltage Insulation Resistance Testing

INSULATION RESISTANCE TEST PARAMETERS

Test Duration: 60s

Cable Voltage Rating (kV ac)	Test Voltage (V dc)
5 kV	2500 V
15 kV	2500 V
25 kV	5000 V
35 kV	5000 V
46 kV	5000 V

Results should be in the Gigaohm (GΩ) range. Results lower than this range should be investigated.

APPLICABLE WIRE AND CABLE

Medium Voltage Extruded-Dielectric Shielded Power Cables Rated 5 kV – 46 kV

REFERENCES

NETA ATS-2021 “Standard for Acceptance Testing Specifications