



# Copper PE30 / PE45 Solid or Stranded Tracer Wire Fact Sheet

Part# 7400 X.XXXX (X = Variable Information)



COPPER PE30 / PE45 IS used for tracer wire systems to conductively locate buried utility lines for the gas, water, sewer, telecommunication, and electrical markets. It is made from oxygen free copper cathode formed into copper rod. Copper rod is pulled thru a series of drawing dies to achieve conductor diameter. Conductor then undergoes a heat treating process (annealing), resulting in soft annealed copper. The process above is what determines properties like break load and flexibility. The next process is extrusion of the insulation; high-density, high molecular weight polyethylene (HMW-HDPE). HDPE is considered the best tracer wire insulation due to cost, smoothness, and abrasion protection. The final process is processing insulated wire onto reels.

### DESCRIPTION:

- Equal to copper in signal-tracing performance using only one wire
- For Direct Burial
- Available gauges: 8 AWG | 10 AWG | 12 AWG | 14 AWG
- Available reel sizes: 500' | 1,000' | 2,500' | 5,000'
- Available insulation thickness: 30 mil (30v) HDPE | 45 mil (600v) HDPE
- Insulation colors: Red | Yellow | Orange | Green | Blue | Purple | White | Black | Brown
- RoHS Compliant and works with connectors you already use
- All insulation spark tested @5000 VAC (30 mil) and @7500 VAC (45 mil).

### STANDARDS & REFERENCES:

Pro-Trace HS-CCS meets or exceeds all applicable UL Standards, ASTM specifications, and requirements of the National Electrical Code.

- ASTM B-3: Standard Specification for Soft or Annealed Copper Wire.
- ASTM B170: Standard Specification for Oxygen-Free Electrolytic Copper.
- ASTM D1248: Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.

| CONDUCTOR (Physical, Mechanical and Electrical Properties) |            |         |         |         |
|--|------------|---------|---------|---------|
|  | 14AWG      | 12AWG   | 10AWG   | 8AWG    |
| Conductor Type   | Copper     |         |         |         |
| Conductor Temper   | Soft-Drawn |         |         |         |
| Break Strength (lbs)                                       | 124        | 197     | 313     | 479     |
| Elongation   | 3.0 %      | 5.0 %   | 5.0 %   | 5.0 %   |
| Copper Thickness Solid (Dia.)                              | 0.0641"    | 0.0808" | 0.1019" | 0.1285" |
| Copper Thickness Stranded (Dia.)                           | 0.0726"    | 0.0915" | 0.1155" | 0.1458" |
| Product Weight Solid (Lbs Per 1,000')                      | 16.0       | 24.0    | 37.0    | 62.0    |
| Product Weight Stranded (Lbs Per 1,000')                   | 17.0       | 25.0    | 39.0    | 64.0    |
| Nominal DC Resistance (ohms)                               | 2.525      | 1.588   | 0.999   | 0.628   |

| INSULATION (Physical, Mechanical and Electrical Properties) |            |                               |
|---|------------|-------------------------------|
| Density @ 23°C  | ASTM D792  | 0.945 g/cm <sup>3</sup>       |
| Melt Flow Rate  | ASTM D1238 | 0.8 g/10 min                  |
| Tensile Strength  | ASTM D638  | 3,400 psi                     |
| Tensile Strength Retention                                  | ASTM D638  | 90% after 48 hours @ 100°C    |
| Tensile Elongation  | ASTM D638  | 500%                          |
| Tensile Elongation Retention                                | ASTM D638  | 90% after 48 hours @ 100°C    |
| Environmental Stress Cracking                               | ASTM D1693 | 0 failures @ 48 hours         |
| Thermal Stress Cracking                                     | ASTM D2951 | 0 failures @ 96 hours         |
| Brittleness Temperature                                     | ASTM D746  | 0 failures @ -76°C            |
| Melting Temperature   | ASTM D3418 | 130 °C                        |
| Oxidative Induction Time                                    | ASTM D3895 | 170 min @ 200°C               |
| Dielectric Constant   | ASTM D1531 | 2.32 @ 1 MHz                  |
| Dissipation Factor  | ASTM D1531 | 0.00006 @ 1 MHz               |
| DC Volume Resistivity @ 23°C                                | ASTM D257  | > 1 x 10 <sup>15</sup> ohm-cm |