PERMAGUARD-L (Listed)  www.duraline.com

FEATURES:
- ETL Listed to UL 651A, used per NEC Article 353
- Manufactured from flexible HDPE, makes gradual bends without special equipment
- Excellent low temperature properties, for better handling in cold climates
- Outstanding ductility and strength, protects cables from shifting ground
- Protects cables from rock and root impingement, increasing UG cable life
- Provides a permanent pathway, simplifies future cable repair and replacement
- Added UV stabilization package

APPLICATION:
Innerduct placed into existing conduit, direct buried, concrete encased

INSTALLATION METHODS:
Trenched, Trenchless – horizontally directionally bored (HDD) and chute or pull plowed, concrete encased (minimum of 2” of cover)

MARKET APPLICATION:
Enterprise  C&I  Energy  DOT

DUCT COLOR:
- UV Stabilized

STRIPE:
- Color coded with minimum of 3 extruded stripes (equally separated 120° degrees apart) or extruded color surface

OPTIONS:
- Sequential foot or meter markings. Custom print streams available.
- Factory pre-installed Bull-Line™ Pull Tape with EVEN-LOAD™, ensures extra slack at any access point throughout the reel. Available 500lb - 6,000lb tensile strength or locatable.
- Long continuous lengths on reels or coils. Stick lengths of 40’ or 50’

STANDARDS:
Meets or exceeds the HDPE resin requirements per ASTM D 3350 UV Black (minimum carbon black loading of 2%), Sequential footage markings, permanent ink jet or indent print, tested and listed by Intertek Laboratories (ETL) to assure compliance with UL 651A, certified by Dura-Line to comply with all UL 651A property and testing requirements.
### Resin Requirements per ASTM D 3350, having a minimum cell classification of 334420 C for black and E for color.

<table>
<thead>
<tr>
<th>Cell #</th>
<th>Property</th>
<th>Description</th>
<th>Minimum Requirements</th>
<th>Acceptable Test Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Resin Density</td>
<td>0.940-0.947 g/cm³</td>
<td>ASTM D 1505 or ASTM D 792 or ASTM 4883</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Melt Index</td>
<td>&lt;0.4 grams /10 minutes</td>
<td>ASTM D 1238</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Flexural Modulus</td>
<td>80,000 psi</td>
<td>ASTM D 790</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tensile Strength</td>
<td>3,000 psi</td>
<td>ASTM D 638</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elongation</td>
<td>400%</td>
<td>ASTM D 638</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Slow Crack Growth Resistance</td>
<td>Condition B, 10% Igepal/H2O solution, F50=&gt;24hrs</td>
<td>ASTM D 1693</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Hydrostatic Design Basis</td>
<td>Non-pressure rated</td>
<td>ASTM D 2837</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Black UV Resistance</td>
<td>Added carbon black @ 2% by weight</td>
<td>ASTM D 4218</td>
<td></td>
</tr>
<tr>
<td>or E</td>
<td>Color UV Resistance</td>
<td>Color with UV inhibitor and antioxidant</td>
<td>ASTM D 4238</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Supported bend radius for ½” through 2 ½” is 10 times the OD while the unsupported bend radius is 20 times the OD. Supported bend radius for 3” through 6” is 11 times the OD while the unsupported bend radius is 22 times the OD.
2. "Safe Working Load" is calculated using a 20% safety factor with the minimum resin tensile strength of 3,000 psi, the average OD and minimum wall thickness.