

Technical Note PP 839-TN

Weatherability

Outdoor Storage Limits of Performance Pipe

Gas Distribution Pipe Products

Performance Pipe polyethylene gas distribution piping products are protected from UV effects and outdoor exposure to ensure pipe performance requirements are maintained. ASTM D2513 requires that all polyethylene gas pipes produced to the standard must be able to withstand a minimum of 2 years outdoor storage without affecting the pipe's ability to meet the requirements of the standard. ASTM D2513 allows outdoor storage times in excess of 2 years where the manufacturer has shown that the pipe performance properties are not affected by the extended outdoor storage time.¹

Yellow Pipes

Yellow pipes, such as Driscopipe[®] 8100 and DriscoPlex[®] 6500, are protected against outdoor exposure through additive formulations. Accelerated laboratory weathering tests were conducted on the formulations that predict the yellow pipe materials are protected sufficiently to provide a service life of at least four years in outdoor exposure conditions. The accelerated tests measure changes in the tensile properties of the polyethylene materials after exposure to high levels of UV and humidity. Performance Pipe also conducts actual field pipe exposure tests to confirm the accelerated laboratory weathering test predictions. At periodic time intervals the field exposed pipe samples are tested for melt flow (ASTM D1238 condition 190/2.16), hoop stress/ring tensile (ASTM D1598/ASTM D2290), and ESCR (ASTM D1693, condition C). The test data confirm that there is no measurable change in pipe performance properties after over four years of outdoor exposure. A summary of the test data is attached.

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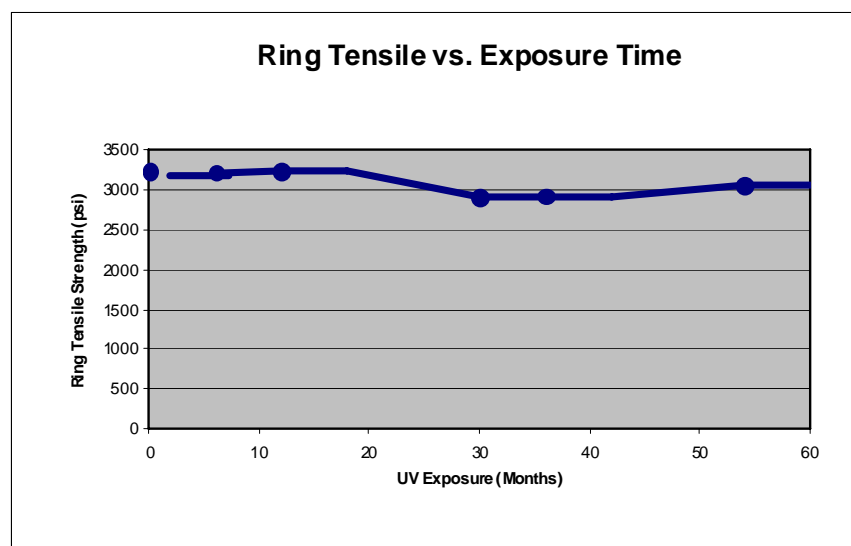
¹ ASTM D2513-04a Section A.1.5.7 *Outdoor Storage Stability*

Black Pipes

For black pipes, such as Yellowstripe® 8300, the presence of a minimum of 2% carbon black properly dispersed in the polyethylene piping material provides long term protection from the potentially damaging affects of UV and outdoor exposure. 'Weathering studies have shown that pipe produced with a minimum 2.0% concentration of finely divided and evenly dispersed carbon black is protected from the harmful effects of UV radiation for indefinite periods of time.'² Field experience of piping materials containing a minimum of 2% carbon black confirms that pipe performance does not deteriorate after extended years of service in selected outdoor exposure.

Based on the tests conducted, Performance Pipe provides the following specific outdoor storage recommendations for the Performance Pipe gas distribution piping products.

- DriscoPlex® 6500 4 years
- Driscopipe® 8100 4 years
- Yellowstripe® 8300 10 years



² Plastic Pipe Institute 'Handbook of Polyethylene Pipe' Chapter 8, *Above Ground Applications*

