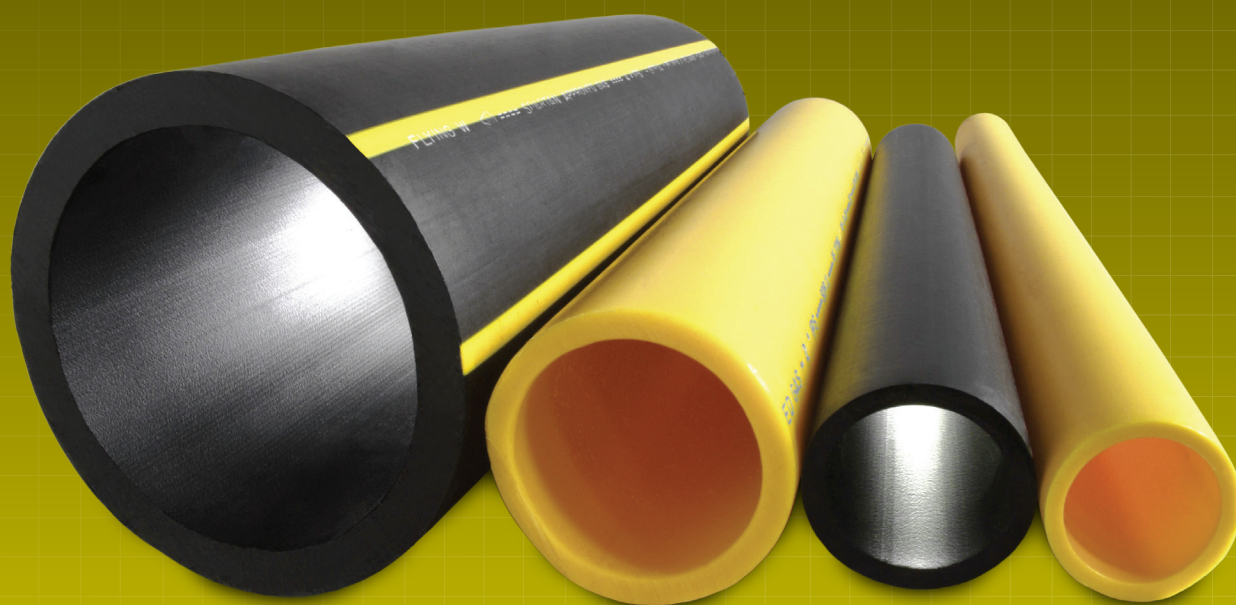


## ***Titan II™ & Supreme™ Medium- & High-Density Polyethylene Pipe***

### PRODUCT SPECIFICATIONS



Premium Polyethylene Gas & Oil Patch Pipe



**PLASTICS, INC.**

[www.flyingwplastics.com](http://www.flyingwplastics.com)

Flying W Plastics, Inc. | 487 Vanhorn Dr. • PO Box 759 | Glenville, WV 26351  
304.462.5779 ph • 800.327.4735 sales • 304.462.7657 fx



## OVERVIEW

Flying W Plastics manufactures polyethylene gas pipe for **gas gathering** and **oil patch** applications in accordance with the specifications set forth in ASTM D 2513. We carry a complete line of both PE2708 (2406) Medium-Density Yellow Gas Pipe [1] and PE4710 (3408) High-Density Black Gas Pipe [2]. Both come with a 25-Year Warranty (see Warranty Statement for details) and are available in various diameter sizes and lengths.



for natural gas gathering  
and oil patch applications



for natural gas distribution  
and service lines



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## PE4710 PRODUCT SPECS

### PE4710 (3408) HDPE black gas pipe

Flying W Plastics certifies this product to be manufactured from PE4710 (3408) high-density polyethylene copolymer (see properties below) and meet specifications set forth in ASTM D-2513 (Standard Specification for Thermoplastics Gas Pressure Pipe, Tubing, and Fittings). These polyethylene copolymers are designed specifically for pipe extrusion and are listed with the Plastic Pipe Institute (PPI). They exhibit excellent long-term stress life and environmental stress crack resistance. This material is certified to CSA Standard B 137.4-99 and is recognized by the Plastics Pipe Institute as having a PE4710 (3408) and PE 100 rating.

| <u>Typical Properties</u> <sup>1</sup>             | <u>English Values</u> | <u>SI Units</u> | <u>ASTM Method</u> |
|--|-----------------------|-----------------|--------------------|
| Density (Black)                                    | -                     | 0.959 g/cc      | D 4883             |
| Melt Index <sup>2</sup>                            | -                     | 8.0 g/10 min    | D 1238             |
| Tensile Strength @ Yield (2 in/min)                | 3625 psi              | 25.0 MPa        | D 638              |
| Tensile Strength @ Break (2 in/min)                | 5500 psi              | 38.0 Mpa        | D 638              |
| Elongation @ Break (2 in/min)                      | >600%                 | >600%           | D 638              |
| Flexural Modulus <sup>3</sup>                      | 150,000 psi           | 1.035 Mpa       | D 790              |
| Notched Izod Impact Strength                       | 9 ft-lbf/in           | 0.49 kj/m       | D 256              |
| Hardness (Shore D)                                 | 66                    | 66              | D 2240             |
| Vicat Softening Point                              | 259 °F                | 126 °C          | D 1525             |
| Brittleness Temperature                            | <-180 °F              | <-118 °C        | D 746              |
| Hydrostatic Design Basis @ 23 °C                   | 1600 psi              | 11.0 Mpa        | D 2837             |
| Hydrostatic Design Basis @ 60 °C                   | 1000 psi              | 6.9 Mpa         | D 2837             |
| Minimum Required Strength                          | -                     | 100 Mpa         | ISO 9080           |
| Environmental Stress Crack Resistance <sup>4</sup> | >5000 hrs             | >5000 hrs       | D 1693             |
| Notch Tensile (PENT)                               | >5,000 hrs            | >5,000 hr       | F 1473             |
| Carbon Black Concentration                         | 2.3%                  | 2.3%            | D 1603             |
| Cell Classification                                | 445574C               | 445574C         | D 3350             |

<sup>1</sup>Typical properties will vary within specification limits

<sup>2</sup>190 °C / 21600g

<sup>3</sup>2% Secant-Method 1

<sup>4</sup>Condition C

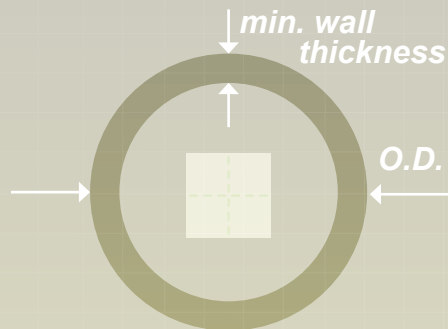


## SUPREME BLACK GAS PIPE SIZE AVAILABILITY

### PE4710 (3408) HDPE black gas pipe

#### DR 11.0

| IPS Pipe Size | Nominal OD | Min. Wall | Avg. ID (in.) | Weight lbs/ft |
|---------------|------------|-----------|---------------|---------------|
| 1/2"          | 0.840      | 0.076     | 0.67          | 0.08          |
| 3/4"          | 1.050      | 0.095     | 0.84          | 0.125         |
| 1"            | 1.315      | 0.120     | 1.06          | 0.197         |
| 1-1/4"        | 1.660      | 0.151     | 1.34          | 0.313         |
| 1-1/2"        | 1.900      | 0.173     | 1.53          | 0.411         |
| 2"            | 2.375      | 0.216     | 1.91          | 0.642         |
| 2-1/2"        | 2.875      | 0.261     | 2.32          | 0.94          |
| 3"            | 3.500      | 0.318     | 2.82          | 1.39          |
| 4"            | 4.500      | 0.409     | 3.63          | 2.30          |
| 5"            | 5.563      | 0.506     | 4.49          | 3.52          |
| 6"            | 6.625      | 0.602     | 5.34          | 4.99          |
| 8"            | 8.625      | 0.784     | 6.96          | 8.46          |
| 10"           | 10.750     | 0.977     | 8.67          | 13.14         |
| 12"           | 12.750     | 1.159     | 10.29         | 18.49         |
| 14"           | 14.000     | 1.273     | 11.30         | 22.29         |
| 16"           | 16.000     | 1.455     | 12.91         | 29.12         |
| 18"           | 18.000     | 1.636     | 14.53         | 36.85         |



$$DR = O.D. / \text{min. wall thickness}$$

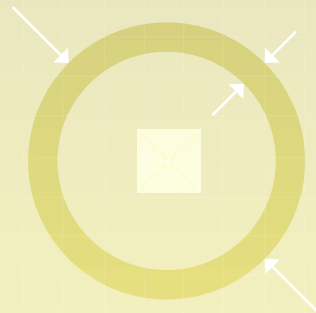
#### DR 9.0

| IPS Pipe Size | Nominal OD | Min. Wall | Avg. ID (in.) | Weight lbs/ft |
|---------------|------------|-----------|---------------|---------------|
| 1/2"          | 0.840      | 0.093     | 0.64          | 0.096         |
| 3/4"          | 1.050      | 0.117     | 0.80          | 0.15          |
| 1"            | 1.315      | 0.146     | 1.00          | 0.235         |
| 1-1/4"        | 1.660      | 0.184     | 1.26          | 0.374         |
| 1-1/2"        | 1.900      | 0.211     | 1.45          | 0.49          |
| 2"            | 2.375      | 0.264     | 1.81          | 0.766         |
| 2-1/2"        | 2.875      | 0.319     | 2.19          | 1.12          |
| 3"            | 3.500      | 0.389     | 2.67          | 1.66          |
| 4"            | 4.500      | 0.500     | 3.44          | 2.75          |
| 5"            | 5.563      | 0.618     | 4.25          | 4.20          |
| 6"            | 6.625      | 0.736     | 5.06          | 5.96          |
| 8"            | 8.625      | 0.958     | 6.59          | 10.10         |
| 10"           | 10.750     | 1.194     | 8.21          | 15.68         |
| 12"           | 12.750     | 1.417     | 9.74          | 22.06         |
| 14"           | 14.000     | 1.556     | 10.70         | 26.60         |
| 16"           | 16.000     | 1.778     | 12.23         | 34.74         |
| 18"           | 18.000     | 2.000     | 13.76         | 43.97         |

**NOTE:** Pressure ratings can be application-specific. To determine maximum allowable pressure ratings, please check with any and all state, federal and local requirements that may govern your specific application. Pressure calculations can be made using the PPI (Plastic Pipe Institute) formula outlined in PPI TR-4 while taking the above considerations into account. More information can be found at [www.plasticpipe.org](http://www.plasticpipe.org).

#### DR 7.3

| IPS Pipe Size | Nominal OD | Min. Wall | Avg. ID (in.) | Weight lbs/ft |
|---------------|------------|-----------|---------------|---------------|
| 1/2"          | 0.840      | 0.115     | 0.59          | 0.114         |
| 3/4"          | 1.050      | 0.144     | 0.74          | 0.18          |
| 1"            | 1.315      | 0.180     | 0.93          | 0.28          |
| 1-1/4"        | 1.660      | 0.227     | 1.17          | 0.447         |
| 1-1/2"        | 1.900      | 0.260     | 1.34          | 0.585         |
| 2"            | 2.375      | 0.325     | 1.68          | 0.914         |
| 2-1/2"        | 2.875      | 0.394     | 2.04          | 1.34          |
| 3"            | 3.500      | 0.479     | 2.48          | 1.99          |
| 4"            | 4.500      | 0.616     | 3.19          | 3.28          |
| 5"            | 5.563      | 0.762     | 3.94          | 5.02          |
| 6"            | 6.625      | 0.908     | 4.70          | 7.12          |
| 8"            | 8.625      | 1.182     | 6.12          | 12.06         |
| 10"           | 10.750     | 1.473     | 7.62          | 18.74         |
| 12"           | 12.750     | 1.747     | 9.04          | 26.36         |



Other sizes and dimensions  
available upon request.



**\*\*THIS PRODUCT HAS BEEN DISCONTINUED\*\***



## PE2708 PRODUCT SPECS

### PE2708 (2406) MDPE yellow gas pipe

Flying W Plastics certifies the above product of be manufactured from PE2708 (2406) Yellow Medium density polyethylene copolymer (see properties below) and meet specifications set forth in ASTM D-2513 (Standard Specification for Thermoplastics Gas Pressure Pipe, Tubing, and Fittings). These polyethylene copolymers are designed specifically for pipe extrusion and are listed with the Plastic Pipe Institute (PPI). They exhibit excellent long term stress life and environmental stress crack resistance. This material is certified to CSA Standard B 137.4-02 and is recognized by the Plastics Pipe Institute as having a PE2708 (2406) and PE 80 rating.

| <b>T</b><br><b>Typical Properties<sup>1</sup></b>            | <b>English Values</b> | <b>SI Values</b>     | <b>ASTM Method</b> |
|--|-----------------------|----------------------|--------------------|
| Density (Yellow)   | -                     | 0.943 g/cc           | D 4883             |
| Melt Index <sup>2</sup>                                      | -                     | 0.20 g/10 min        | D 1238             |
| Tensile Strength<br>@ Yield (2 in/min)<br>@ Break (2 in/min) | 2800 psi<br>4500 psi  | 19.3 MPa<br>31.0 MPa | D 638<br>D 638     |
| Elongation @ Break (2 in/min)                                | >800%                 | >800%                | D 638              |
| Flexural Modulus <sup>3</sup>                                | 100,000 psi           | 690 MPa              | D 790              |
| Notched Izod Impact Strength                                 | 10 ft-lbf/in          | 0.53 kJ/m            | D 256              |
| Hardness (Shore D)   | 64                    | 64                   | D 2240             |
| Vicat Softening Point  | 248 °F                | 120 °C               | D 1525             |
| Brittleness Temperature                                      | <-180 °F              | <-118 °C             | D 746              |
| Hydrostatic Design Basis<br>@ 23 °C<br>@ 60 °C               | 1250 psi<br>1000 psi  | 8.6 MPa<br>6.9 MPa   | D 2837<br>D 2837   |
| Minimum Required Strength                                    | -                     | 8.0 MPa              | ISO 9080           |
| Environmental Stress Crack Resistance <sup>4</sup>           | >5000 hrs             | >5000 hrs            | D 1693             |
| Environmental Stress Crack Resistance <sup>5</sup>           | >5000 hrs             | >5000 hrs            | D 1693             |
| Pipe Ring ESCR <sup>6</sup>                                  | >5000 hrs             | >5000 hrs            | F 1248             |
| Notch Tensile (PENT)   | >500 hrs              | >500 hrs             | F 1473             |
| Thermal Stability  | 428 °F Min.           | 220 °C Min.          | D 2513 / D 3350    |
| Cell Classification  | 234373E               | 234373E              | D 3350             |

<sup>1</sup>Typical properties will vary within specification limits

<sup>2</sup>190 °C / 2160g

<sup>3</sup>2% Secant-Method 1

<sup>4</sup>Condition B, 10%

<sup>5</sup>Condition C

<sup>6</sup>One inch, IDR 7

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## TITAN II YELLOW GAS PIPE SIZE AVAILABILITY

### PE2708 (2406) MDPE yellow gas pipe

Approvals for MDPE gas pipe vary from region to region, and can be gas company-specific. Please check your local requirements to be certain our pipe is approved in your area. For maximum working pressure, check API recommendations, Federal D.O.T. requirements and/or other required standards for your specific application.

### I.P.S. (Iron Pipe Sizes)

| Nominal<br>Pipe Size | Part Number | Nominal OD | Wall<br>Thickness | Nominal<br>Weight<br>(per ft.) | Coil/Joint<br>Length | List Price<br>(per 100 ft.) |
|----------------------|-------------|------------|-------------------|--------------------------------|----------------------|-----------------------------|
| ½" (DR 9.3)          | G4411       | 0.840"     | 0.090"            | .10#                           | 150'                 | CALL                        |
|                      | G4415       |            |                   |                                | 500'                 |                             |
| ¾" (DR 11)           | G4421       | 1.050"     | 0.095"            | .13#                           | 150'                 | CALL                        |
|                      | G4425       |            |                   |                                | 500'                 |                             |
| 1" (DR 11)           | G4431       | 1.315"     | 0.119"            | .20#                           | 150'                 | CALL                        |
|                      | G4433       |            |                   |                                | 300'                 |                             |
|                      | G4435       |            |                   |                                | 500'                 |                             |
| 1 ¼" (DR 11)         | G4441       | 1.660"     | 0.151"            | .31#                           | 150'                 | CALL                        |
|                      | G4443       |            |                   |                                | 300'                 |                             |
|                      | G4445       |            |                   |                                | 500'                 |                             |
| 1 ½" (DR 10)         | G4441-10    | 1.660"     | 0.166"            | .34#                           | 150'                 | CALL                        |
|                      | G4445-10    |            |                   |                                | 500'                 |                             |
| 1 ½" (DR 11)         | G4451       | 1.900"     | 0.173"            | .41#                           | 150'                 | CALL                        |
|                      | G4455       |            |                   |                                | 500'                 |                             |
| 2" (DR 11)           | G4461       | 2.375"     | 0.216"            | .64#                           | 150'                 | CALL                        |
|                      | G4465       |            |                   |                                | 500'                 |                             |

Other coil lengths may be available upon request, and may require additional run times. Sizes 3" and larger are priced upon request and are subject to minimum run quantities.

**\*\*THIS PRODUCT HAS BEEN DISCONTINUED\*\***

### C.T.S. (Copper Tube Size)

| Nominal<br>Pipe Size | Part Number | Nominal OD | Wall<br>Thickness | Nominal<br>Weight<br>(per ft.) | Coil/Joint<br>Length | List Price<br>(per 100 ft.) |
|----------------------|-------------|------------|-------------------|--------------------------------|----------------------|-----------------------------|
| 1" (DR 11)           | CT443100    | 1.125"     | 0.099"            | .14#                           | 100'                 | Call                        |
|                      | CT4431      |            |                   |                                | 150'                 |                             |
|                      | CT4435      |            |                   |                                | 500'                 |                             |



## 25-YEAR LIMITED WARRANTY

Flying W Plastics warrants its Titan II and Supreme Gas pipe against rot, rust, material flaws, structural weaknesses and electrolytic corrosion and warrants it to be free from defect in materials and workmanship for a period of twenty-five (25) years from date of purchase by and to the original purchaser only. Flying W Plastics expressly limits its responsibility under this Limited Warranty to the following:

Flying W Plastics Inc., will provide an equivalent amount of plastic pipe of like size and grade to that amount which it acknowledges to be defective, to the original installer only.

†

A sample measuring a minimum of twenty-four inches (24") in length, bearing the Flying W Plastics trademark, for any segment of pipe alleged by the original purchaser only to be defective, must be submitted to Flying W Plastics for inspection and testing. Any plastic pipe of Flying W Plastics thereafter acknowledged to be defective shall be exchanged as aforesaid, and Flying W Plastics shall assume the reasonable costs of transportation thereof to the point of the original delivery.

Purchaser and/or installer assumes all risk and liability for loss, damages or injury to persons or property of buyer or other parties arising out of use or possession of materials and products of Flying W Plastics, Inc.

### Exclusions:

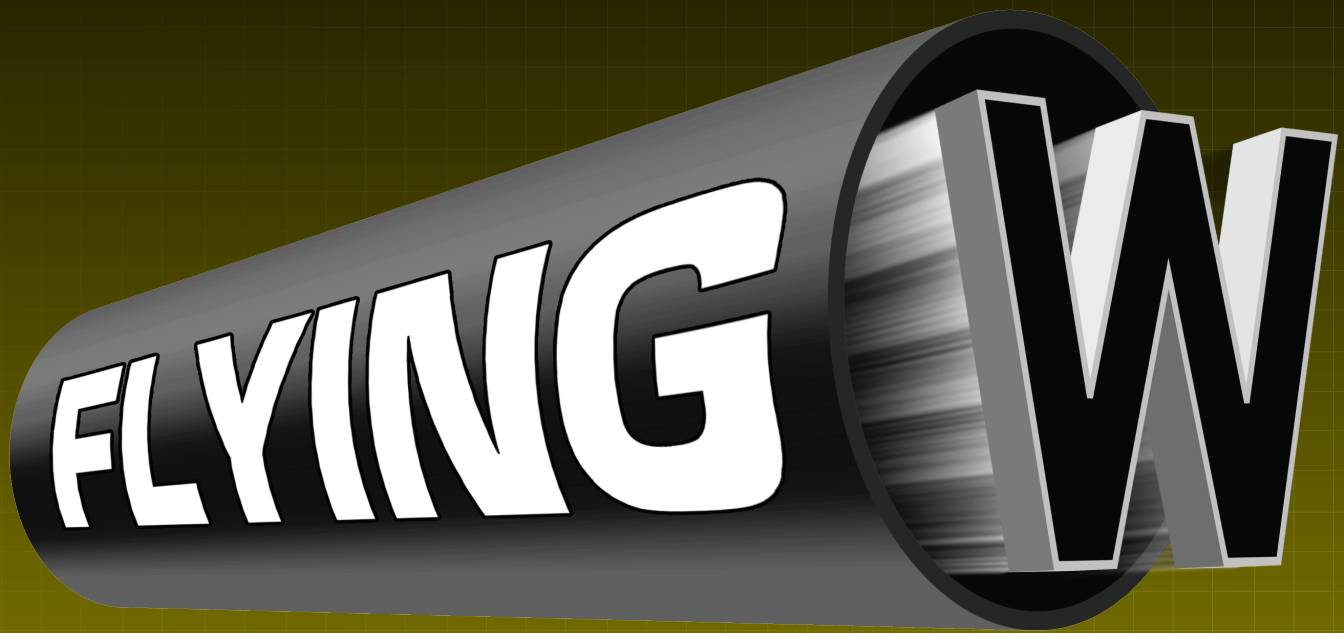
There are no warranties which extend beyond the description on the face thereof. Flying W Plastics disclaims any express or implied warranties of merchantability and fitness for a particular purpose. Flying W Plastics shall not be liable for special, indirect, incidental or consequential damages related to a defect of the pipe.

For the warranty to be valid pipe must be installed in accordance with accepted and approved industry guidelines and procedures. (PPI, ASTM, API)

Warranty does not apply to any fusion joining process or any other method or device used to join the pipe.

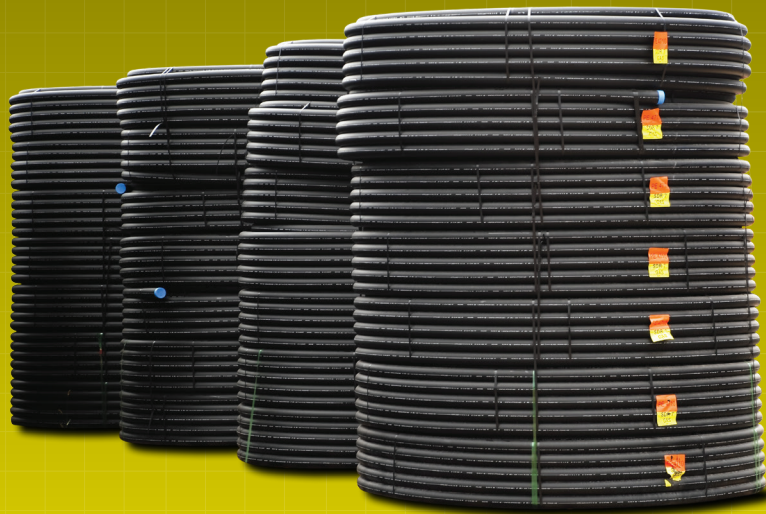
Warranty does not apply to the design or installation of the system or any other component of the system.

There are no warranties which extend beyond the description on the face thereof.



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