



# Swan Plastics, L.L.C.

6500 N. Kickapoo Shawnee, OK, USA 74804  
PH: (405) 275-4826 FAX: (405) 275-3626

## PE 2406 Material Properties

The material used by Swan Plastics Co. to manufacture PE 2406 pipe fittings is a yellow medium density polyethylene resin designed specifically for pipe extrusion. It exhibits excellent long term stress life and environmental stress crack resistance. This material is recognized by the Plastic Pipe Institute as having a PE 2406 rating. Yellow POLYGAS K38-20-160.

Property	ASTM Test Method	Typical Values	
		English Units	SI Units
Density (Yellow)	D 1505	----	.943 g/cc
Melt Index <sup>1</sup>	D 1238	----	.20 g/10 min
Tensile Strength			
@ Yield (2 in/min)	D 638	3000 psi	20.7 MPa
@ Break (2 in/min)	D 638	4500 psi	31.0 MPa
Elongation			
@ Break (2 in/min)	D 638	>800%	>800%
Flexural Modulus <sup>2</sup>	D 790	100,000 psi	690 MPa
Notched Izod Impact Strength	D 256	10 ft-lbf/in	0.53 kj/m
Hardness (Shore D)	D 2240	64	64
Vicat Softening Point	D 1525	248°F	120°C
Brittleness Temperature	D 746	<-180°F	<-118°C
Hydrostatic Design Basis			
@ 23°C	D 2837	1250 psi	8.6 MPa
@ 60°C	D 2837	1000 psi	6.9 MPa
Environmental Stress			
Crack Resistance <sup>3</sup>	D 1693	>5000 hrs	>5000 hrs
Environmental Stress			
Crack Resistance <sup>4</sup>	D 1693	>5000 hrs	>5000 hrs
Pipe Ring ESCR <sup>5</sup>	Rader	>5000 hrs	>5000 hrs
Cell Classification	D 3350	234433E	234433E

<sup>1</sup> 190°C/21600 g

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

<sup>3</sup> Condition B, 10%

<sup>4</sup> Condition C

<sup>5</sup> One inch, SIDR 7

To the best of our knowledge the information contained herein is accurate. However, Swan Plastics Co. assumes no liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of the suitability of any information or material for the use contemplated, or the manner of use is the sole responsibility of the user. The above information gives typical properties only and is not to be used for specification purposes.



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## PE 3408 Material Properties

The material used by Swan Plastics Co. to manufacture PE 3408 pipe fittings is a black high density polyethylene copolymer designed specifically for extrusion of potable water, industrial, and mining pipe. It has NSF certification and is recognized by the Plastic Pipe Institute as having a PE 3408 rating.

Property	ASTM Test Method	Typical Values	
		English Units	SI Units
Density (Black)	D 4883	----	.955 g/cc
Melt Index <sup>1</sup>	D 1238	----	13.0 g/10 min
Tensile Strength			
@ Yield (2 in/min)	D 638	3300 psi	22.8 MPa
@ Break (2 in/min)	D 638	4500 psi	31.0 MPa
Elongation			
@ Break (2in/min)	D 638	>800%	>800%
Flexural Modulus <sup>2</sup>	D 790	120,000 psi	827 MPa
Notched Izod Impact Strength	D 256	6 ft-lbf/in	0.32 kj/m
Hardness (Shore D)	D 2240	68	68
Vicat Softening Point	D 1525	259°F	126°C
Brittleness Temperature	D 746	<-180°F	<-118°C
Hydrostatic Design Basis			
@ 23°C	D 2837	1600 psi	11.0 MPa
@ 60°C	D 2837	800 psi	5.5 MPa
Environmental Stress			
Crack Resistance <sup>3</sup>	D 1693	>2000 hrs	>2000 hrs
Environmental Stress			
Crack Resistance <sup>4</sup>	D 1693	>5000 hrs	>5000 hrs
Pipe Ring ESCR <sup>5</sup>	F 1248	>5000 hrs	>5000 hrs
Notch Tensile (PENT)	F 1437	>30 hrs	>30 hrs
Carbon Black Concentration	D 1603	2.5%	2.5%
Cell Classification	D 3350	345444C	345444C

<sup>1</sup> 190°C/21600 g

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

<sup>3</sup> Condition B, 10%

<sup>4</sup> Condition C

<sup>5</sup> Two inch, SIDR 19

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## PE 4710 Material Properties

The material used by Swan Plastics Co. to manufacture PE 4710 pipe fittings is a black high density bimodal polyethylene copolymer designed for extrusion of potable water, natural gas, industrial, and mining pipe. It has NSF Standard 14 certification and complies with ANSI/NSF Standard 61 health effects requirements. TUB 121 is recognized by the Plastic Pipe Institute as having a pipe material designation code of PE 4710 and PE 100. The ASTM D3350 Cell Classification for this resin is: PE445576A.

Typical Properties	Typical Values		ASTM Method
	English Units	SI Units	
Density (Black)	----	0.9485 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
@ Break (2 in/min)	5500 psi	38.0 MPa	D 638
Elongation			
@ Break (2in/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
Thermal Stability	428 °F min	220 °C min	D2513/D3350
Hydrostatic Design Basis <sup>5</sup>			
@ 23°C	1600 psi	11.0 MPa	D 2837
@ 60°C	1000 psi	6.9 MPa	D 2837
Environmental Stress			
Crack Resistance <sup>4</sup>	>5000 hrs	>5000 hrs	D 1693
Minimum Required Strength <sup>5</sup>	----	10.0 MPa	ISO 9080
Notch Tensile (PENT)	>10,000 hrs	>10,000 hrs	F 1437

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

<sup>2</sup> 190°C/21,600 g

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

<sup>4</sup> Condition C

<sup>5</sup> Based upon black compound TUB 121

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