

MEDIUM-DENSITY
POLYETHYLENE
YELLOW GAS
MEETS ASTM D2513

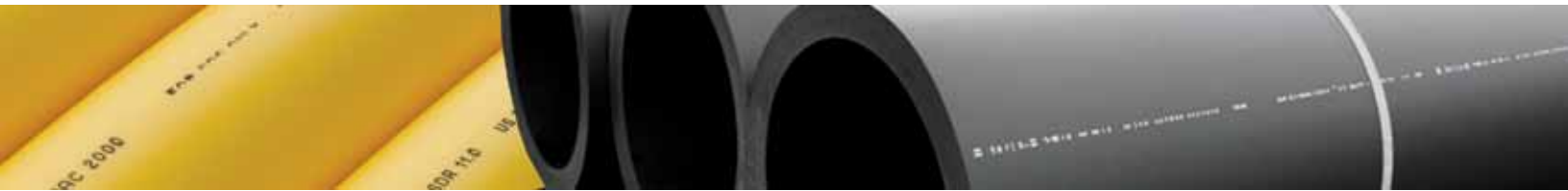


*Building essentials
for a better tomorrow™*



MEDIUM-DENSITY
**POLYETHYLENE
YELLOW GAS**

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MEDIUM-DENSITY POLYETHYLENE YELLOW GAS

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PRODUCT DESCRIPTION

MEDIUM-DENSITY POLYETHYLENE YELLOW GAS

FOR FUEL GAS USE IN MULTIPLE APPLICATIONS FOR GAS DISTRIBUTION

DESCRIPTION

Polyethylene gas pipes are the preferred natural gas distribution piping product of choice with over 90% usage in North America today. Polyethylene gas pipes are lightweight, non-corrosive, available in coil lengths, and easy to install by heat fusion or mechanical fittings. For these reasons, PE pipes have been proven reliable, durable, and have been in use since the 1960's.



LONG LAYING LENGTHS

Standard coil lengths provide long, uninterrupted run capabilities. This means that more ground can be covered during installation while eliminating the cost of unnecessary joints. Longer lengths provide convenience in installation and allow for significant cost savings in labor and equipment.

APPLICATIONS

JM Eagle's UAC 2000 MDPE yellow gas pipe is suitable for fuel gas use in multiple applications for gas distribution.

Note: Gas Pipe products (previously produced by US Poly) are currently manufactured by JM Eagle™.

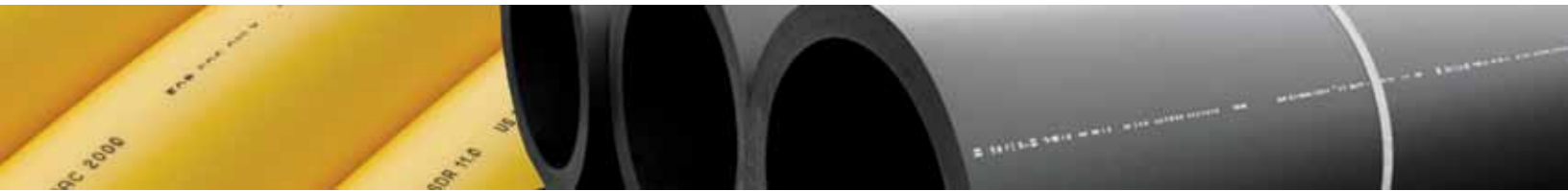
QUALITY CONTROL

JM Eagle™ takes great pride in the quality and workmanship of all of our products. JM Eagle™ quality control programs encompass three critical aspects of the manufacturing process: the incoming raw material, pipe production, and the finished goods. Incoming material is visually inspected and tested to ensure the material meets all applicable requirements before its release for production. During production, the pipe will be visually examined for any cosmetic defect and pipe samples will be collected for physical verification and testing for compliance. The finished product is subjected to further visual inspection to ensure it has met all the appropriate specifications and packaging requirements. Without exception, our pipes are constantly monitored throughout the entire manufacturing process to validate that they are in accordance with all applicable specifications. JM Eagle's Quality Management System is ISO 9001:2000 registered.* Copies of the registration certificates are available on our website at www.jmeagle.com.



CORROSION RESISTANCE

JM Eagle's UAC 2000 MDPE yellow gas pipe has good resistance to most solvents and chemicals which it is likely to encounter in natural and manufactured gas distribution services. UAC 2000 pipe meets the chemical resistance specifications outlined in ASTM D2513.



WEATHER RESISTANCE

UAC 2000 pipe has a stabilizer system to protect it from ultraviolet (UV) degradation when exposed to direct sunlight. The recommended outdoor storage is generally limited to three to five years from the date of manufacture. In general, JM Eagle™ recommends the use of a first-in, first-out inventory procedure.

SLOW CRACK GROWTH RESISTANCE

Another benefit of JM Eagle's UAC 2000 MDPE yellow gas pipe is its high slow crack growth resistance. Slow crack growth resistance is a valuable characteristic, which provides long lasting performance under long-term stress.

SAVE IN HANDLING COSTS

JM Eagle's UAC 2000 MDPE yellow gas pipes are light-weight and can reduce manpower required for installation.

FIELD CUTTING

UAC 2000 pipe should be cut with pipe and tubing cutters designed for plastic pipe. These tools easily provide the square cut ends which are necessary to provide satisfactory fusion joints. If carpenter or hack saws are used to cut the pipe, special care must be taken to ensure square cut ends and to clean the resultant sawdust from inside the pipe.

LIGHT WEIGHT

A 500 foot length of 2" SDR 11 UAC 2000 MDPE yellow gas pipe weighs approximately 315 pounds. That makes it easy to load, easy to transport, and easy to handle. Installers prefer it because it goes into the ground quickly—thus saving on installation cost.

SERVICE LIFE

Since polyethylene does not corrode and is resistant to most chemicals, this pipe does not lose strength due to either gas corrosion or external galvanic soil conditions. The design characteristics of flexible polyethylene pipe allows for long-term resistance to earth loading and soil movement.

Installer training for the proper use and installation of polyethylene pipe is a critical factor in its long-term performance. The UAC 2000 system has ample safety factors included in its design for providing reliable long-term performance in gas distribution service, if the system is properly installed and operated at design pressures.





PRODUCT DESCRIPTION

MEDIUM-DENSITY POLYETHYLENE YELLOW GAS

(CONTINUED)

INSTALLATION

This product should be installed in accordance with JM Eagle™ Publication JME-12B, “Polyethylene Yellow Gas Distribution Installation Guide.”

LONG-TERM STRENGTH

The industry standard for establishing the design basis for polyethylene gas distribution systems is ASTM D2837, “Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.” This standard assigns the long-term strength of the pipe based on hydrostatically tested samples at a range of pressures which result in creep rupture failures over a period of 10,000 hours or more. A regression analysis of these burst data is made to project the failure curve to 100,000 hours establishing the Long-Term Hydrostatic Strength (LTHS). Based on this, a Hydrostatic Design Basis (HDB) is assigned for each standard temperature tested.

The pressure rating and associated ASTM D2513 designation for two temperatures are summarized in **Table 1**

TABLE 1

These are typical properties for basic characterization of

TEMPERATURE, °F	HYDROSTATIC DESIGN, BASIC CATEGORY, psi	ASTM D2513
73	1250	PE2406/PE2708
140	1000	CE

the material and do not represent specific determinations or specifications.



PHYSICAL PROPERTIES

Table 2 lists general physical properties of UAC 2000.



PHYSICAL PROPERTY DATA FOR UAC 2000 POLYETHYLENE PIPE

TABLE 2

PROPERTY	TEST METHOD	UNIT	VALUE
Density	ASTM D1505	grams/cm ³	0.943
Melt Index	ASTM D1238 (190°C/2.16kg load)	grams/10 min.	0.2
Environmental Stress Cracking Resistance Condition C (molded specimen)	ASTM D1693	hrs	> 5000
PENT	ASTM F1473	hrs	> 1000
Tensile Strength, Ultimate Type IV Specimen	ASTM D638 (2"/min.)	psi	4500
Tensile Strength, Yield Type IV Specimen	ASTM D638 (2"/min.)	psi	2800
Elongation at Break Type IV Specimen	ASTM D638 (2"/min.)	%	> 500
Vicat Softening Temperature	ASTM D1525	°F	248
Brittleness Temperature	ASTM D746	°F	< -180
Flexural Modulus	ASTM D790	psi	100,000
Hardness	ASTM D2240	Shore D	63
Coefficient of Linear Thermal Expansion	ASTM D696	in / in / °F	9 x 10 ⁻⁵
Hydrostatic Design Basic (HDB) @ 73°F	ASTM D2837	psi	1250
Hydrostatic Design Basic (HDB) @ 140°F	ASTM D2837	psi	1000
Material Cell Classification	ASTM D3350		234373E
Material Designation	PPI Recommendation		PE2406/2708

SHORT SPECIFICATION

MEDIUM-DENSITY POLYETHYLENE YELLOW GAS

SCOPE

This specification designates general requirements for ½" through 12" UAC 2000 MDPE yellow gas pipe for the conveyance of fuel gas distribution.

MATERIALS

JM Eagle™ polyethylene gas pipes and fittings are manufactured using the highest-grade materials available. All materials provide physical and mechanical properties as classified in accordance to ASTM D3350 and have a cell classification of 234373E. These materials are listed with Plastics Pipe Institute (PPI) as PE 2406/2708 medium-density polyethylene.

PIPE

UAC 2000 polyethylene gas pipes are manufactured in accordance with all applicable specifications including ASTM D2513, the standard specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings, and by reference meet the Department of Transportation Title 49, Part 192 "Transportation of Natural and Other Gas by Pipe Line Minimum Safety Standards".

JOINING METHODS

JM Eagle's UAC 2000 system can easily be joined by socket fusion, butt fusion, saddle fusion, mechanical fittings or electrofusion. All methods are reliable means of joining the UAC 2000 piping system. Generally, the choice of which joining method to use is at the discretion of the individual gas company.

INSTALLATION

UAC 2000 pipe can be joined by heat fusion, electrofusion, or mechanical fittings. JM Eagle™ offers a full-line of socket, butt, and saddle fittings, in addition to the proven MetFit® mechanical fittings product line. With proper installation, our gas pipes provide a leak free product providing unconditional assurance for our customers.



For these reasons, UAC 2000 PE gas pipes are the natural choice pipe product for use in the gas market. For installation procedures and more information, request a copy of the UAC 2000 Technical & Installation Guide.

DIMENSIONS AND WEIGHTS

SUBMITTAL AND DATA SHEET

COILS NOMINAL SIZE	SDR*	PIPE DATA				PACKAGING DATA				
		WEIGHT LB/100 (FT)	MIN. WALL (IN)	AVER. O.D. (IN)	FEET/ COIL	SILO PACKS		COIL DIMENSIONS		
						COILS/ PACK	FEET/ PACK	NOMINAL ID	MAX OD	WIDTH
1/2" CTS (5/8" OD)	7.0	6.4	0.090	0.625	1,000	12	12,000	2'6"	3'9"	5 1/2"
1/2" CTS (5/8" OD)	7.0	6.4	0.090	0.625	500	10	5,000	2'6"	3'9"	5 1/2"
1" CTS (1 1/8" OD)	11.5	14	0.090	1.125	500	7	3,500	2'6"	3'9"	11"
1" CTS (1 1/8" OD)	12.5	13	0.090	1.125	500	7	3,500	2'6"	3'9"	11"
1/2"	9.3	9	0.090	0.840	1,000	7	7,000	2'6"	3'9"	12"
1/2"	9.3	9	0.090	0.840	500	10	5,000	2'6"	3'9"	7 3/4"
3/4"	11.0	12	0.095	1.050	500	7	3,500	2'6"	3'9"	11"
1"	11.0	19	0.120	1.315	500	6	3,000	2'6"	3'9"	14 1/2"
1 1/4"	10.0	34	0.166	1.660	500	12	6,000	4'	6'8"	7"
1 1/4"	11.0	31	0.151	1.660	500	12	6,000	4'	6'8"	7"
1 1/2"	11.0	40	0.173	1.900	500	10	5,000	4'	6'8"	8"
2"	11.0	63	0.216	2.375	250	12	3,000	4'	6'8"	8"
2"	11.0	63	0.216	2.375	500	7	3,500	4'3"	6'8"	12"
2"	11.0	63	0.216	2.375	1,500	2	3,000	4'	6'8"	41"
3"	11.0	137	0.318	3.500	315	6	1,890	5'10"	8'	16"
3"	11.0	137	0.318	3.500	500	4	2,000	5'10"	8'	23"
3"	11.0	137	0.318	3.500	1,000	2	2,000	5'10"	8'	46"
3"	11.5	131	0.304	3.500	315	6	1,890	5'10"	8'	16"
3"	11.5	131	0.304	3.500	500	4	2,000	5'10"	8'	23"
3"	11.5	131	0.304	3.500	1,000	2	2,000	5'10"	8'	46"

LARGE DIAMETER COILS

NOMINAL SIZE	SDR*	FEET/COIL	PACKAGING DATA				
			SILO PACKS		COIL DIMENSIONS		
			COILS/ PACK	FEET/PACK	NOM. ID	WIDTH	TRUCKLOAD QUANTITY
4"	11.5	500	3	1,500	70"	31"	7,500
4"	11.5	1000	2	2,000	70"	45"	10,000
4"	13.5	500	3	1,500	70"	31"	7,500
4"	13.5	1000	2	2,000	70"	45"	10,000
6"	11.5	450	2	900	84"	45"	4,500
6"	13.5	450	2	900	84"	45"	4,500

Note: Gas Pipe products (previously produced by US Poly) are currently manufactured by JM Eagle™.

DIMENSIONS AND WEIGHTS

SUBMITTAL AND DATA SHEET

40' STRAIGHT LENGTHS

NOMINAL SIZE	SDR*	PIPE DATA		PACKAGING DATA		
		WEIGHT LB/100 (FT)	MIN. WALL (IN)	BULK PACKS		
				AVER. O.D. (IN)	FEET/PACK	NUMBER LENGTHS/ PACK
2" **	11.0	63	0.216	2.375	4,200	105
3"	11.5	131	0.304	3.500	2,000	50
4"	11.5	217	0.391	4.500	1,160	29
4"	13.5	188	0.333	4.500	1,160	29
6"	11.5	472	0.576	6.625	520	13
6"	13.5	408	0.491	6.625	520	13
6"	21.0	271	0.316	6.625	520	13
8"	11.0	833	0.785	8.625	560	14
8"	13.5	692	0.639	8.625	560	14
8"	21.0	457	0.410	8.625	560	14
10"	13.5	1075	0.797	10.750	440	11
12"	13.5	1511	0.945	12.750	120	3

GENERAL NOTES

SDR 11.0 is available for 3", 4" and 6" IPS sizes.

IPS is used in this Submittal and Data Sheet unless CTS is specifically designated.

Pipe is sold in package quantities only.

Other pipe and tubing sizes may be available.

Note: Gas Pipe products (previously produced by US Poly) are currently manufactured by JM Eagle™.

SHORT FORM INSTALLATION GUIDE/ WARNING

This information is furnished in order to provide a brief review of the installation requirements for JM Eagle's black/yellow-striped HDPE fuel gas piping system. It is not intended to serve as or replace the FULL VERSION of the complete product installation guide available upon request.

1. When inserting polyethylene pipe, avoid damage to the pipe both during installation and from shear forces caused by earth loading after the system is installed.
2. A starter ditch of sufficient length must be opened to allow the pipe to be inserted without buckling or excessive bending.
3. The casing pipe should be prepared to the extent necessary to prevent any sharp edges, projections or abrasive material from damaging the plastic pipe during or after insertion.
4. The edge of the casing opening should be shielded to prevent shaving or gouging of the pipe being inserted.
5. If polyethylene pipe is to be pulled through the casing pipe, the tensile loading should not exceed $\frac{1}{2}$ the tensile strength of the inserted pipe.
6. The federal regulation requires that the leading end of the plastic be closed before insertion. Fabricated nose cones of wood, metal or PE pipe end caps can be used for this purpose. A straight length on the lead end of a coiled pipe will often aid insertion, especially in cold weather.
7. A newly inserted main or service line must be allowed to contract while cooling to ground temperature prior to tie-in. Tie-in or coupling of inserted mains or services can be accomplished using standard heat fusion, electrofusion or compression type fittings.

WARNING: INSTALLATION SAFETY AND FIELD PRECAUTIONS

THE IMPORTANCE OF PROPER TRAINING AND RETRAINING IN THE INSTALLATION AND OPERATION OF PLASTIC PIPING SYSTEMS CANNOT BE OVEREMPHASIZED. KNOWLEDGE OF PROPER INSTALLATION RECOMMENDATIONS AND REQUIREMENTS WILL MINIMIZE THE POTENTIAL FOR FAILURE RESULTING FROM IMPROPER INSTALLATION PRACTICES, ACCIDENTS AND INJURIES.

BEFORE AND DURING INSTALLATION, ALWAYS:

- Consult and follow the FULL VERSION of the product installation guide
- Consult The Code of Federal Regulations (CFR) Title 49, Subchapter D-Pipe-line Safety for specific guidance on installation requirements
- Closely follow the specifications of the individual gas company
- Use protective gear and equipment

BEFORE AND DURING PERFORMING JOINING METHODS, ALWAYS:

- Treat electrical tools as potential sources of ignition and follow standard safety procedures for working in explosive atmospheres
- Wear suitable gloves and eye protection
- Temperature of fusion tools should be checked to be sure that they conform to the recommended operating temperature range
- Before cutting coiled pipe, restrain both sides of cut
- Understand and follow all equipment manufacturer's recommendations and guidelines

Please contact JM Eagle™ Product Assurance at (800) 621-4404 to obtain FULL VERSION of the appropriate installation guide or for further assistance.



WARRANTY

JM EAGLE™ PRODUCTS LIMITED WARRANTY

J-M Manufacturing Co., Inc. (JM Eagle™) warrants that its standard polyvinyl chloride (PVC), polyethylene (PE), conduit/plumbing/solvent weld and Acrylonitrile-Butadiene-Styrene (ABS) pipe Products (“Products”) are manufactured in accordance with applicable industry specifications referenced on the Product and are free from defects in workmanship and materials. Every claim under this warranty shall be void unless in writing and received by JM Eagle™ within thirty (30) days of the date the defect was discovered, and within one (1) year of the date of shipment from the JM Eagle™ plant. Claims for Product appearance defects, such as sun-bleached pipe etc., however, must be made within thirty (30) days of the date of the shipment from the JM Eagle™ plant. This warranty specifically excludes any Products allowed to become sun-bleached after shipment from the JM Eagle™ plant. Proof of purchase with the date thereof must be presented to the satisfaction of JM Eagle™, with any claim made pursuant to this warranty. JM Eagle™ must first be given an opportunity to inspect the alleged defective Products in order to determine if it meets applicable industry standards, if the handling and installation have been satisfactorily performed in accordance with JM Eagle™ recommended practices and if operating conditions are within standards. Written permission and/or a Return Goods Authorization (RGA) must be obtained along with instructions for return shipment to JM Eagle™ of any Products claimed to be defective.

The limited and exclusive remedy for breach of this Limited Warranty shall be, at JM Eagle’s sole discretion, the replacement of the same type, size and like quantity of non-defective Product, or credits, offsets, or combination of thereof, for the wholesale purchase price of the defective unit.

This Limited Warranty does not apply for any Product failures caused by user’s flawed designs or specifications, unsatisfactory applications, improper installations, use in conjunction with incompatible materials, contact with aggressive chemical agents, freezing or overheating of liquids in the product and any other misuse causes not listed here. This Limited Warranty also excludes failure or damage caused by fire stopping materials, thread sealants, plasticized vinyl Products or damage caused by the fault or negligence of anyone other than JM Eagle™, or any other act or event beyond the control of JM Eagle™.

JM Eagle’s liability shall not, at any time, exceed the actual wholesale purchase price of the Product. The warranties in this document are the only warranties applicable to the Product and there are no other warranties, expressed or implied. This Limited Warranty specifically excludes any liability for general damages, consequential or incidental damages, including without limitation, costs incurred from removal, reinstallation, or other expenses resulting from any defect. IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE SPECIFICALLY DISCLAIMED AND JM EAGLE™ SHALL NOT BE LIABLE IN THIS RESPECT NOTWITHSTANDING JM EAGLE’S ACTUAL KNOWLEDGE THE PRODUCT’S INTENDED USE.

JM Eagle’s Products should be used in accordance with standards set forth by local plumbing and building laws, codes, or regulations and the applicable standards. Failure to adhere to these standards shall void this Limited Warranty. Products sold by JM Eagle™ that are manufactured by others are warranted only to the extent and limits of the warranty of the manufacturer. No statement, conduct or description by JM Eagle™ or its representative, in addition to or beyond this Limited Warranty, shall constitute a warranty. This Limited Warranty may only be modified in writing signed by an officer of JM Eagle™.



PLANT LOCATIONS

ADEL

2101 J-M Drive
Adel, Georgia 31620

BATCHELOR

2894 Marion Monk Road
Batchelor, Louisiana 70715

BUCKHANNON

Old Drop 33, Mudlick Road
Buckhannon, West Virginia 26201

BUTNER

2602 West Lyon Station Road
Creedmoor, North Carolina 27522

CAMERON PARK

3500 Robin Lane
Cameron Park, California 95682

COLUMBIA

6500 North Brown Station Road
Columbia, Missouri 65202

CONROE

101 East Avenue M
Conroe, Texas 77301

FONTANA

10990 Hemlock Avenue
Fontana, California 92337

HASTINGS

146 North Maple Avenue
Hastings, Nebraska 68901

KINGMAN

4620 Olympic Way
Kingman, Arizona 86401

MAGNOLIA

2220 Duracrete Drive
Magnolia, Arkansas 71753

M McNARY

31240 Roxbury Road
Umatilla, Oregon 97882

MEADVILLE

15661 Delano Road
Cochranon, Pennsylvania 16314

PERRIS

23711 Rider Street
Perris, California 92570

PUEBLO

1742 E. Platteville Boulevard
Pueblo West, Colorado 81007

STOCKTON

1051 Sperry Road
Stockton, California 95206

SUNNYSIDE

1820 South First Street
Sunnyside, Washington 98944

TACOMA

2330 Port of Tacoma Road
Tacoma, Washington 98421

TULSA

4501 West 49th Street
Tulsa, Oklahoma 74107

VISALIA

8875 Avenue 304
Visalia, California 93291

WHARTON

10807 US 59 RD
Wharton, Texas 77488

WILTON

1314 W. Third Street
Wilton, Iowa 52778

MEXICO

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DE MÉXICO S DE R.L. DE S.A.
Av. Montes Urales No. 8 y 10
Parque Industrial Opción, Carretera
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** Our Mexico location is a joint
venture between JM Eagle™ and
Plastics Technology*

GLOBAL HEADQUARTERS

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Los Angeles, California 90045

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Nine Peach Tree Hill Road
Livingston, New Jersey 07039

J-M Manufacturing Co., Inc. and PW Eagle, Inc. are doing business as JM Eagle™.

JM Eagle

- THE LEADER IN PIPE INNOVATION
- THE HIGHEST LEVEL OF QUALITY
- THE LARGEST BREADTH OF PRODUCT
- THE WIDEST CAPACITY
- EXPRESS DELIVERY



PLANT LOCATIONS

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for a better tomorrow™*

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