

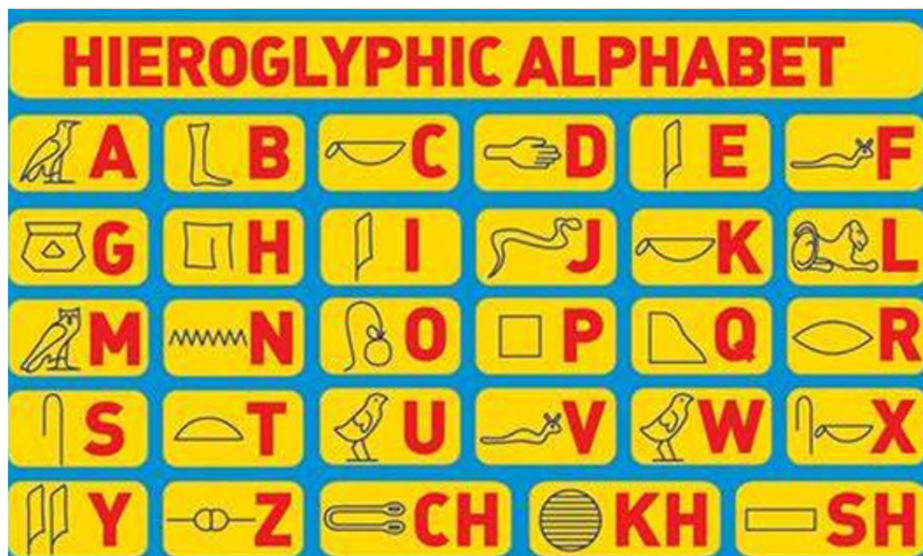


PLASTIC PIPE AND COMPONENT MARKINGS

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PLASTIC PIPE AND COMPONENT MARKINGS



PLASTIC PIPE AND COMPONENT MARKINGS



- What is up with all the writing on the plastic pipe?
- Does an Operator need record what is installed?



PLASTIC PIPE AND COMPONENT MARKINGS



- Code Requirements - Plastic
 - 192.63 Marking of Materials
 - (e) All markings on plastic pipe prescribed in the *listed specification* must be repeated at intervals not exceeding two feet.

What is Listed Specification?



PLASTIC PIPE AND COMPONENT MARKINGS



- Listed Specification – is defined in Section I of Appendix B of Part 192
 - ASTM D2513-12ae1 “Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings”



PLASTIC PIPE AND COMPONENT MARKINGS



- ASTM D2513-12ae1, Section 7 (American Society for Testing and Materials)
 - Gas
 - Designation ASTM D2513
 - Manufacturer's name
 - Nominal pipe size
 - Including sizing system used
 - Dimension Ratio (DR) or minimum wall thickness
 - Material designation
 - Date of Manufacture



PLASTIC PIPE AND COMPONENT MARKINGS

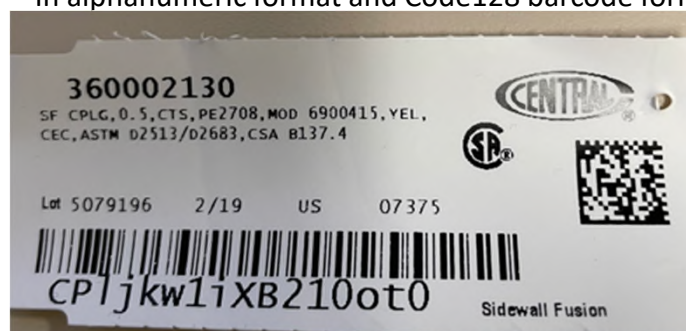


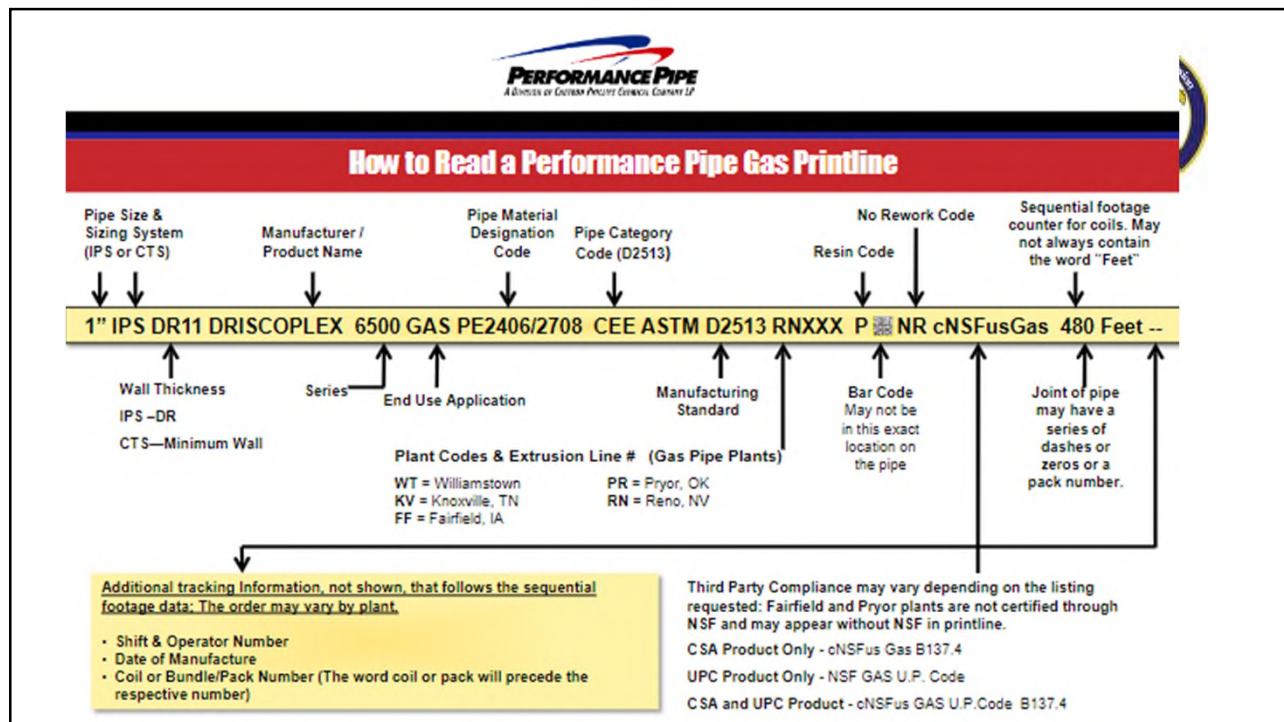
- ASTM D2513-12ae1, Section 7.1.1
 - Also the pipe markings shall include coding to determine
 - Location of manufacture
 - Pipe production
 - Resin lots
- Manufacturer is to keep the records for 50 years or design service life of pipe, whichever is longer

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- ASTM D2513-12ae1, Section 7.6
 - ALL PE pipe, tubing and fusion fitting shall be marked with 16 character traceability identifier
 - Per ASTM F2897
 - In alphanumeric format and Code128 barcode format





Examples:

Bimodal MDPE:


1" CTS X .090 WALL --- DURALINE POLYPIPE® PolyTough1™ GDY20 GAS --- PE2406/PE2708 --- CEE --- ASTM D2513 --- NR N03M14 --- 2EB --- 01NOV12 --- COIL 27 --- 500 FEET

Unimodal MDPE:

1" CTS X .090 WALL --- DURALINE POLYPIPE® GDY20 GAS --- PE2406/PE2708 --- CEE --- ASTM D2513 --- NR N03M14 --- 2EB --- 01NOV12 --- COIL 27 --- 500 FEET




Bimodal HDPE:

6" IPS SDR 11 --- DURALINE POLYPIPE® GDB50 GAS --- PE3408/PE4710 --- CEE --- ASTM D2513 --- NR X42L13 --- 2GC --- 12NOV12



Description	GDY20 Example	GDB50 Example
(1) Pipe size/sizing system	1" CTS	6" IPS
(2) SDR or minimum wall thickness	0.090 Wall	SDR 11
(3) Manufacturer's name/trademark	DuraLine PolyPipe PolyTough1 GDY20	DuraLine PolyPipe GDB50
(4) GAS	GAS	GAS
(5) Material Designation Code	PE2406/PE2708	PE3408/PE4710
(6) Elevated Temperature Code	CEE	CEE
(7) ASTM D2513	ASTM D2513	ASTM D2513
(8) Manufacturer's Code	(NR indicates No Rework)	(NR indicates No Rework)
Resin Lot Code	NR N03M14	NR X42L13
Plant Code	2EB	2GC
Date Code	01NOV12	12NOV12
(9) Additional Information	Coil 27 --- 500 Feet	-

NOTICE: The data contained herein is a guide to the use of PolyPipe® polyethylene pipe by PolyPipe and fittings and is believed to be accurate and reliable. However, general data does not adequately cover specific applications, and its suitability in particular applications should be independently verified. In all cases, the user should assume that additional safety measures may be required in the safe installation or operation of the project. Due to the wide variation in service conditions, quality of installation, etc., no warranty or guarantee, expressed or implied, is given in conjunction with the use of this material.

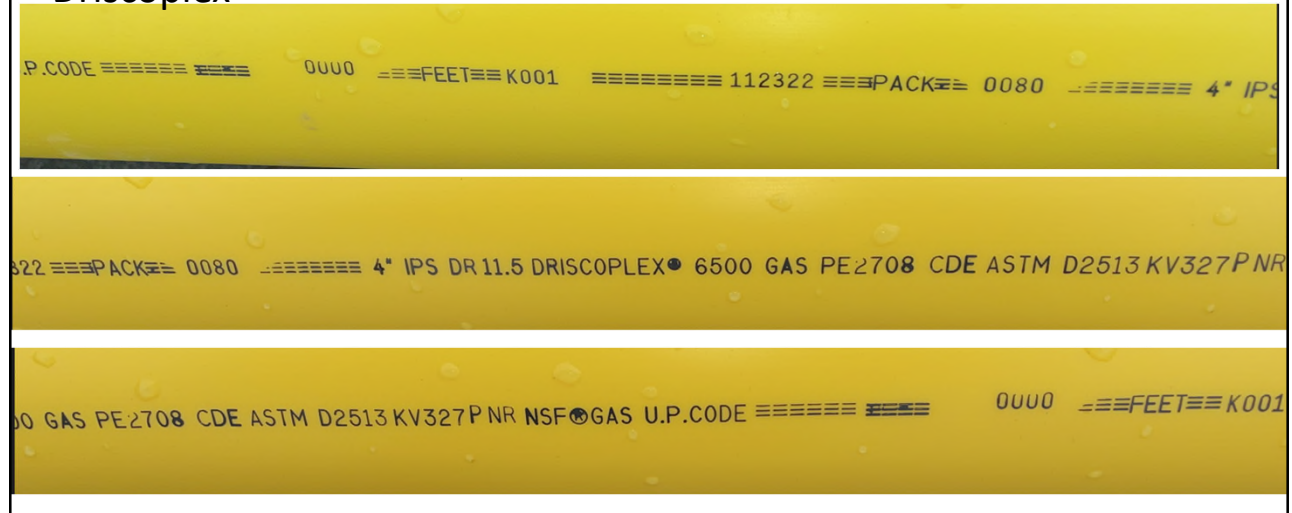


www.polypipeusa.com


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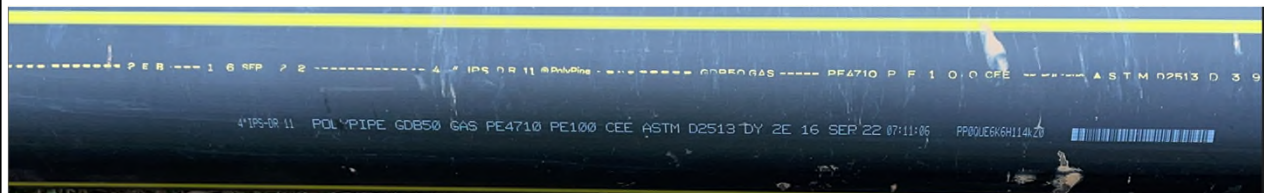
Driscoplex



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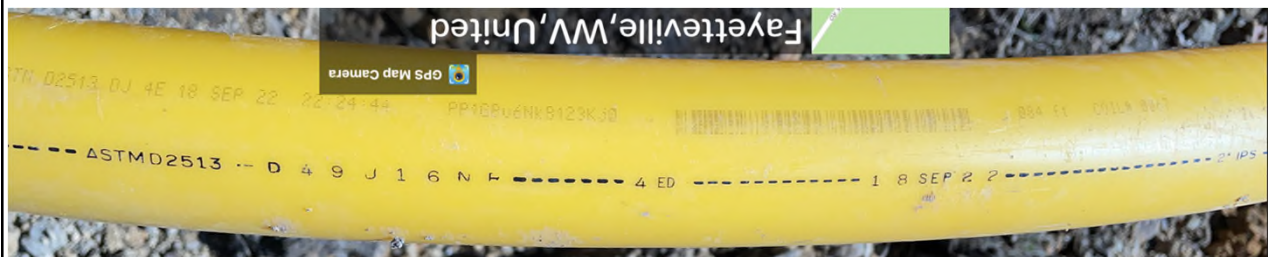
PolyPipe



PLASTIC PIPE AND COMPONENT MARKINGS



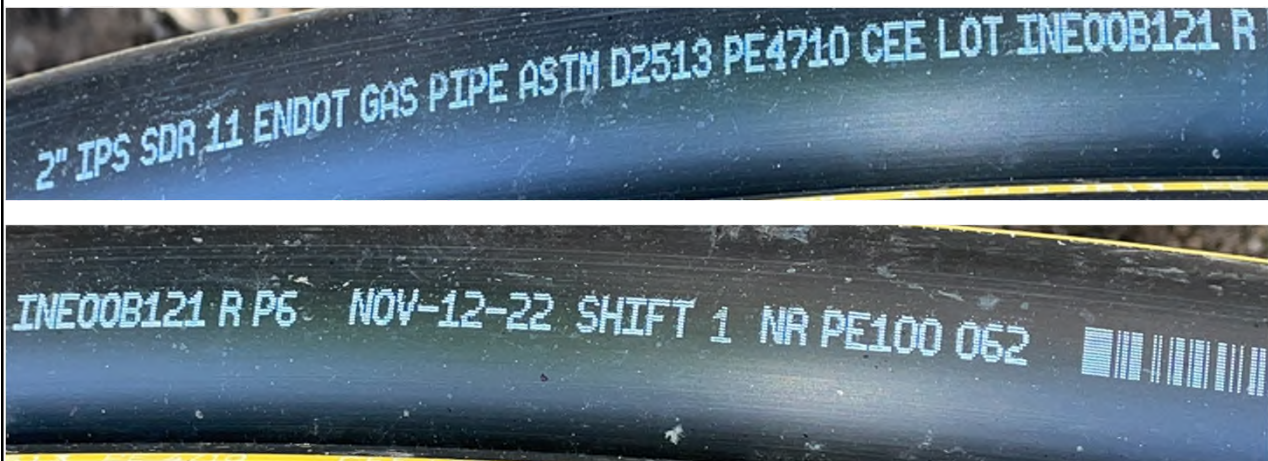
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- Endot Industries



PLASTIC PIPE AND COMPONENT MARKINGS



- Pipe Size – 2" Nominal

Pipe Sizing Code - Iron Pipe Size (IPS) - 2 3/8" OD



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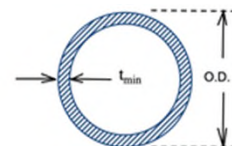
- Standard Dimension Ratio (SDR or DR)

SDR = Outer Diameter / wall thickness

11 = 2.375 / wall thickness

Wall thickness = 0.216 inches

$$DR = \frac{OD}{t_{MIN}}$$

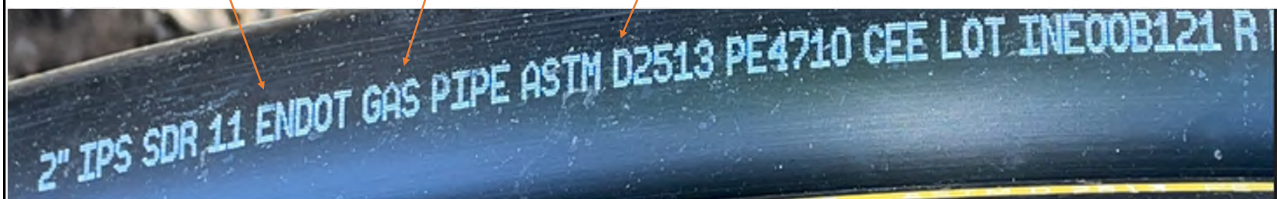




Manufacturer – Endot Industries

Type of Service – Gas

Manufacturing Standard



PLASTIC PIPE AND COMPONENT MARKINGS



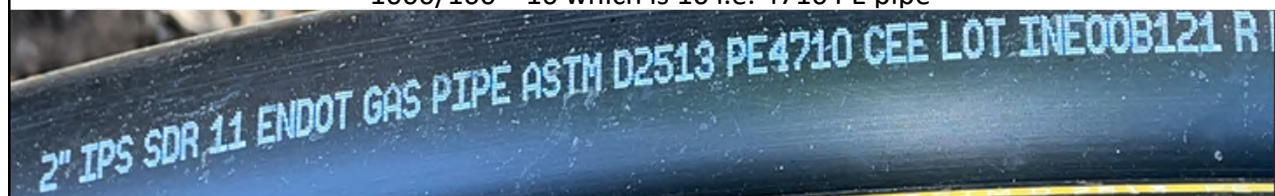
- Pipe Material Code - Polyethylene (PE)
 - 4710
 - 1st digit refers to Density Cell Classification
 - 2nd digit refers to slow crack growth resistance cell classification
 - Last two digits is Hydrostatic Design Stress (HDS) / 100



PLASTIC PIPE AND COMPONENT MARKINGS



- Pipe Material Code - Polyethylene (PE) - Continued
 - 4710
 - Last two digits is Hydrostatic Design Stress (HDS) / 100
 - For example the Medium Density Pipe has a HDS of 800 psig at 73°F
 - $800/100 = 8$ which is 08, i.e. 3608 PE pipe
 - High Density pipe has HDS of 1000 psig at 73°F
 - $1000/100 = 10$ which is 10 i.e. 4710 PE pipe



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- Pipe Category Code – CEE
 - First Letter is the temperature that the hydrostatic design basis is established
 - C = 140° F
 - Second Letter is the Hydrostatic Design Basis
 - E = 1000 psi
 - Third Letter Melt Index
 - E affirms mfg. has verified that their product can be joined to other “E” Materials
- Based on info in Table 5 of ASTM D2513



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- Manufacturer specific information, LOT INE00B121
 - For Endot, this is the resin code
- The code and information will vary per manufacturer



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Manufacturer specific information, Continued

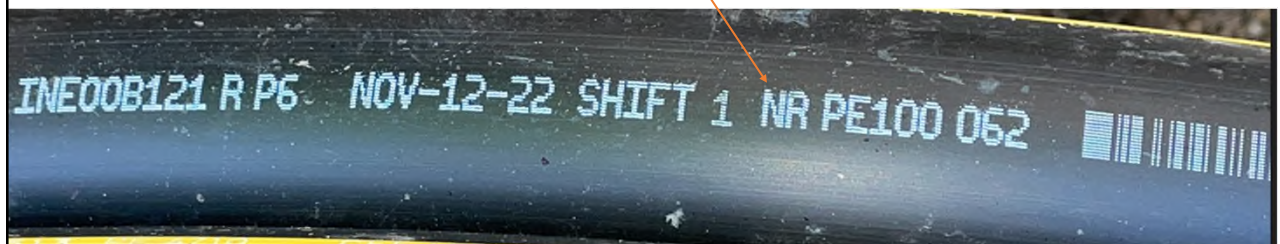
- R - Location where produced, Rockaway, NJ
- P6 – extruder it was produced on
- Date Manufactured



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- NR - No Rework Code
- PE 100 – PE 4710 resin type
- 062 - Footage Marking



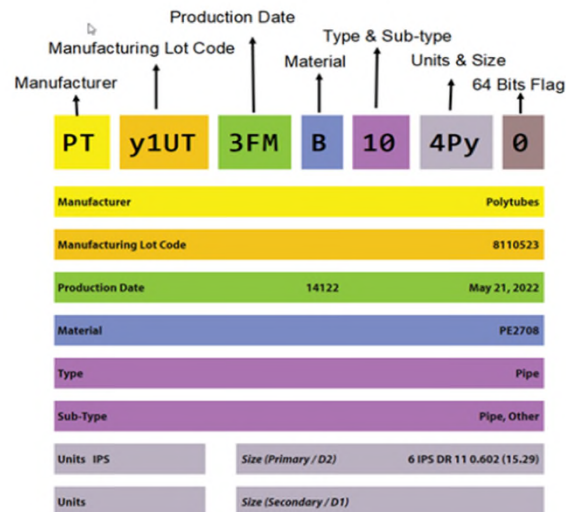
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- 16 character traceability identifier
 - In alphanumeric format and Code128 barcode format



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So what.....

What does the code say an Operator has to record?

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- Code Requirements - Plastic
 - 192.1007 **What are the required elements of an integrity management plan?**
 - (a) Knowledge. An *operator* must demonstrate an understanding of its *gas* distribution system developed from reasonably available information.
 - (1) Identify the characteristics of the pipeline's design and operations and the environmental factors that are necessary to assess the applicable threats and risks to its gas distribution *pipeline*.
 - (7) Provide for the capture and retention of data on any new pipeline installed. The data must include, at a minimum, the location where the new pipeline is installed and the material of which it is constructed.

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- For Steel transmission pipelines, 192.67 Records: Material properties”
 - For pipes installed after 7-1-2020, Operator must retain for pipeline life
 - Diameter
 - *yield strength*
 - ultimate *tensile strength*
 - wall *thickness*
 - seam type
 - chemical composition of materials for *pipe* in accordance with §§[192.53](#) and [192.55](#).
 - Records must include tests, inspections, and attributes required by the manufacturing specifications applicable at the time the pipe was manufactured or installed

PLASTIC PIPE AND COMPONENT MARKINGS



- Why take the time to record and store information?
 - Defective manufacture resulting in further inspection or recall
 - **TDW Leak Repair Clamps with defective seals**
 - Hazardous liquid and natural gas pipeline operators should verify if they have any TDW LRCs subject to the recall by reviewing their records and equipment for installation of these LRCs.
 - **Federal Judge Orders Recall of Non-Standardized Pipeline Flanges**
 - the court found that "during the relevant time period, at least 95 percent of the flanges Ulma advertised and sold into the United States which purported to be normalized and ASTM-compliant were not normalized in compliance with the ASTM standards. Thus, most of their advertising was false."
 - **Driscopipe 8000 – PHMSA advisory of potential material degradation**

PLASTIC PIPE AND COMPONENT MARKINGS



- Why take the time to record and store information?
 - Minimize potential litigation issues
 - According to the National Fire Protection Association (NFPA), [natural gas and propane gas home fires](#) between 2000 and 2004 resulted in 66 deaths and over 400 injuries. On average, NFPA estimates that there are about 2,410 natural gas home fires and 1,390 propane gas fires every year.
 - Accurate and detailed records

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THANKS!