



**Emirates Germany** Pipes Industries الإماراتية الألمانية لصناعة الأنابيب

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الإماراتية الألمانية لصناعة الأنابيب
**Emirates Germany**
Pipes Industries

# COMPANY PROFILE

EGPI is the trade name of Emirates Germany Pipes Industries. It is one of the pioneering companies constructed at the Higher Corporation For Specialized Economic Zones, Al Ain Industrial City I, Emirates of Abu Dhabi, UAE.

EGPI manufactures High & Medium Density Polyethylene (HDPE / MDPE) pipes for size ranging from 16MM OD up to 1,600MM OD, Low Density Polyethylene (LDPE) pipes for size ranging from 10MM OD up to 160MM OD, and Polypropylene(PP) pipes for size ranging from 16MM OD up to 125MM OD. The company strictly follows the internationally known German Standards DIN8074/75 for HDPE, DIN8072/73 for LDPE and DIN8077/78 for PP pipes, and also conforms to ISO4427 and other relevant ISO standard recommendations.

To cope up with the increasing demand of PE and PP pipes in the Middle East, EGPI acquired a state-of-the-art high output machines bearing the latest technology in plastic pipe processing from the world renowned Extrusion manufacturer from Germany. Maintaining high efficiency and enclosed uncontaminated raw material flow, automatic feeding equipment was also supplied from a German Material Handling Systems manufacturer. Top of the line laboratory equipments were supplied from the world's most advanced testing equipment from Germany.

The EGPI manufacturing plant has a designed total annual material output capacity of 40,000 Tons/year. Apart from the main Sales Office in Al Ain, strategic Sales outlet will be established in Abu Dhabi, Dubai, Oman, Qatar and other GCC and African countries.


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# Properties of Polyethylene Pipe

HIGH & MEDIUM DENSITY POLYETHYLENE are non-toxic, flexible, highly resistant to UV radiation, lightweight, impact resistant and has a design life of 50 years at a specified design temperature and pressure rating of the medium. Abrasion resistance is better than any other rigid thermoplastics and considerably better than steel and other metal pipes, concrete and asbestos cement. Corrosion resistance of PE pipes is excellent and extremely resistant to chemicals, solvents and radioactive waste water.

Table 1

| Property | Test Method | Units | PE 80 | PE 100 |
|---|---|---|---|---|
| Density (Compound) | ISO 1183 | $Kg/m^3$ | 956 | 959 |
| Melt Flow Rate(190ºC/5kg) | ISO 1133 | g/10 min | 0.3 | 0.25 |
| Tensile Stress at Yield(50mm/min) | ISO 527-2 | MPa | 22 | 25 |
| Elongation at Break | ISO 527-2 | % | > 600 | > 600 |
| Charpy Impac Strength, notched | ISO 179/1eA | $kJ/m^2$ | 14 | 16 |
| Carbon Black Content | ASTM D 1603 | % | 2 | 2 |
| Vicat Softening Point | ASTM D 1525 | ºC | 118 | 122 |
| Brittleness Temperature | ASTM D 746 | ºC | < -70 | < -70 |
| ESCR (10% Igepal), $F_{50}$ | ASTM D 1693A | Hrs. | >10,000 | >10,000 |
| Thermal Conductivity | DIN 52612 | W/mºK | 0.4 | 0.4 |
| Linear Therma Expansion | ASTM D 696 | $K^{-1}$ | $1.5x10^{-4}$ | $1.5x10^{-4}$ |

## *Thermal Properties*

PE has a coefficient of linear expansion of approximately 1.5 x $10^{-4}$ per degree Centigrade, which is in the order of ten times greater than that for iron or steel. The thermal conductivity of PE is approximately 0.4 $W/m^{O}$ K, so PE is a poor conductor of heat. Therefore, the water or any medium contained in PE pipe changes temperature more slowly than any other conventional pipe.

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## Color of Pipes

Due to the extreme weathering conditions in the Middle East and to counterattack Ultraviolet radiation, EGPI Pipes are normally supplied in black color. A Co-extrusion system is responsible for producing pipe with color stripes depending on pipe application. International norms recommends Blue stripe for potable water, Orange for conduit, and Yellow for gas application. For electrical conduit and fiber optic applications, a two-color double layer pipe is available where the main layer is black and the thin outer layer can be blue, orange, or green depending of customers color specifications. Conduit pipes also has a pulling rope inside pre-installed during production to ensure easy insertion and pulling of fiber optics and electrical cable during installation. Other colors also can be produced depending on customer requirement.

## Chemical Resistance

Polyethylene(PE) has a good resistance to a wide range of chemicals. For all practical purposes, PE is chemically inert within its normal temperature range of use. It does not rot, rust, pit, corrode or loose wall thickness through chemical or electrical reaction with the surrounding soil. It does not normally support the growth of algae, bacteria or fungi.

## Fracture Resistance of Polyethylene Pipe

POLYETHYLENE pipe is tough and 'brittle type' fracture is difficult to achieve even in laboratory tests at low temperatures. The failure mode in stress rupture testing is ductile unless testing is carried out at low stresses at elevated temperatures for considerably extended periods of time to reproduce slow crack growth. PE pipe have excellent resistance to this mode of failure (demonstrated by tests such as the notched pipe test).
For PE100 pipes, catastrophic failure due to rapid crack propagation (RCP) will not occur under normal service conditions. PE pipes that meet the Rapid Crack Propagation (RCP) test requirements for full resistance are suitable for operation at the nominal pressure rating. The many years of successful installation of polyethylene pipe has shown that PE is a tough and resilient material capable of withstanding the normal rigors of pipe laying and pipeline operation.



## Abrasion Resistance of Polyethylene

Pipe rupture caused by the gradual decomposition of the pipe material as a result of corrosion and or abrasion is a problem that deserves prime consideration in the planning of pipe systems and the choice of pipe material. A number of investigations proved that PE pipe has a very strong resistance to abrasive media compared to other pipe materials.

## Weathering Resistance of Polyethylene Pipe

Weathering due to prolonged outdoor exposure will cause degradation of most natural and plastic materials, particularly by the combined effects of short-wave ultra-violet(UV) rays from sunlight and atmospheric oxygen. PE pipes are protected from these effects by the addition of carbon black. Because carbon black is the most effective protection against UV, PE pipes are normally supplied in black. This ensures that black pipes made from this material can be stored or used outdoors over the period of time without any fear of a change in properties, which is not available from other thermoplastics.

## Resistance of Polyethylene Pipe to Microorganism & Rodents

Research carried out by behavioral scientists shows that rodents ( and also gnawing insects such as termites) are compelled to maintain their teeth in good condition by gnawing objects that stand in their way. In the case of PE Pipe, there is the additional point that the smooth round surface does not give the teeth sufficient hold to bite properly. Large number of termites inhabited in countries like Australia & Africa have not reported so far any damage in PE pipelines. PE is not a nutrient medium for bacteria, fungi, spores, parasites, etc. So PE pipes are resistant to all forms of microbial attack. Further, it should be noted that sulphate reducing bacteria in the soil have no effect on PE pipes since the product is resistant to both sulphurous acid and sulphates

## Resistance of Polyethylene Pipe to High Energy Radiation

PE pipes are suitable for applications involving exposure to high energy radiation. This material has been used successfully for many years to remove radioactive effluent from hot laboratories and as cooling water lines in nuclear energy technology.

## Effect of Elevated Temperatures

As per DIN 8074, the nominal working pressure has been calculated for operational conditions at 20ºC. Since Polyethylene is a thermoplastic material, a loss in mechanical properties is to be expected as the temperature rises. PE pipe can be used under pressure at temperatures in excess of 20ºC with an appropriate reduction in its design pressure rating and Service life. A sample illustration for PE100 material taken from DIN8074 is shown below.

Table 2

| Temp C | Years of Service | Working pressure in Bar | Working pressure in Bar | Working pressure in Bar | Working pressure in Bar |
|---|---|---|---|---|---|
| 20 | 50 | 4 | 6.3 | 10 | 16 |
| 40 | 50 | 2.9 | 4.5 | 7.2 | 11.6 |
| 60 | 5 | 1.9 | 3.0 | 4.8 | 7.7 |

## Classification of PE Pipes

Table 3

| MRS | Classification | Designation | σ- Design Stress | C - Safety Factor |
|---|---|---|---|---|
| 8.0 | 80 | PE80 | 6.3 | 1.25 |
| 10.0 | 100 | PE100 | 8.0 | 1.25 |

## STANDARD DIMENSION RATIOS (SDR) of PE Pipes

Table 4

| Compound | PN 3.2 | PN 4 | PN 6.3 | PN 8 | PN 10 | PN 12.5 | PN 16 | PN 20 | PN 25 |
|---|---|---|---|---|---|---|---|---|---|
| PE 80 | 41 | 33 | 21 | 17 | 13.6 | 11 | 9 | 7.4 | - |
| PE 100 | - | 41 | 33 | 21 | 17 | 13.6 | 11 | 9 | 7.4 |

Table 5

**MDPE Pipe Dimension as per DIN 8074 Conforming to ISO 4427**

| O.D. | PE80 Design Stress 6.3 MPa | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | SDR 21 | | SDR 13.6 | | SDR 11 | | SDR 9 | |
| | PN 6.3 | | PN 10 | | PN 12.5 | | PN 16 | |
| | S | Weight | S | Weight | S | Weight | S | Weight |
| mm | mm | Kg/m | mm | Kg/m | mm | Kg/m | mm | Kg/m |
| 16 | | | | | | | 1.8 | 0.085 |
| 20 | | | | | | | 2.3 | 0.134 |
| 25 | | | | | 2.3 | 0.172 | 2.8 | 0.201 |
| 32 | | | | | 3.0 | 0.273 | 3.6 | 0.328 |
| 40 | | | | | 3.7 | 0.432 | 4.5 | 0.511 |
| 50 | | | | | 4.6 | 0.669 | 5.6 | 0.791 |
| 63 | | | 4.7 | 0.9 | 5.8 | 1.05 | 7.1 | 1.27 |
| 75 | | | 5.6 | 1.2 | 6.8 | 1.48 | 8.4 | 1.77 |
| 90 | 4.3 | 1.2 | 6.7 | 1.8 | 8.2 | 2.13 | 10.1 | 2.55 |
| 110 | 5.3 | 1.8 | 8.1 | 2.6 | 10.0 | 3.15 | 12.3 | 3.80 |
| 125 | 6.0 | 2.3 | 9.2 | 3.4 | 11.4 | 4.10 | 14.0 | 4.89 |
| 140 | 6.7 | 2.8 | 10.3 | 4.2 | 12.7 | 5.10 | 15.7 | 6.14 |
| 160 | 7.7 | 3.7 | 11.8 | 5.5 | 14.6 | 6.70 | 17.9 | 7.99 |
| 180 | 8.6 | 4.7 | 13.3 | 7.0 | 16.4 | 8.46 | 20.1 | 10.1 |
| 200 | 9.6 | 5.8 | 14.7 | 8.6 | 18.2 | 10.44 | 22.4 | 12.5 |
| 225 | 10.8 | 7.3 | 16.6 | 10.9 | 20.5 | 13.16 | 25.2 | 15.9 |
| 250 | 11.9 | 9.0 | 18.4 | 13.5 | 22.7 | 16.27 | 27.9 | 19.5 |
| 280 | 13.4 | 11.3 | 20.6 | 16.9 | 25.4 | 20.39 | 31.3 | 24.4 |
| 315 | 15.0 | 14.3 | 23.2 | 21.3 | 28.6 | 25.71 | 35.2 | 30.9 |
| 355 | 16.9 | 18.1 | 26.1 | 27.0 | 32.2 | 32.64 | 39.7 | 39.3 |
| 400 | 19.1 | 23.0 | 29.4 | 34.2 | 36.2 | 41.47 | 44.7 | 49.8 |
| 450 | 21.5 | 29.0 | 33.1 | 43.4 | 40.9 | 52.52 | 50.3 | 63.0 |
| 500 | 23.9 | 35.9 | 36.8 | 53.5 | 45.4 | 64.77 | 55.8 | 77.6 |
| 560 | 26.7 | 44.9 | 41.2 | 67.2 | 50.8 | 81.14 | | |
| 630 | 30.0 | 56.6 | 46.3 | 85.0 | 57.2 | 102.0 | | |
| 710 | 33.9 | 72.3 | 52.2 | 107.7 | 64.5 | 131.0 | | |
| 800 | 38.1 | 91.7 | 58.8 | 136.9 | | | | |
| 900 | 42.9 | 115.7 | 66.1 | 173.1 | | | | |
| 1000 | 47.7 | 142.9 | | | | | | |
| 1200 | 57.2 | 206.3 | | | | | | |
| 1400 | 66.7 | 279.0 | | | | | | |
| 1600 | 76.2 | 364.5 | | | | | | |

OD –Outside Diameter
S- Wall Thickness
SDR- Standard Dimension Ratio
PN– Nominal Pressure Rating

Table 6

## HDPE Pipe Dimension as per DIN 8074 Conforming to ISO 4427

| O.D. | PE100 Design Stress 8 MPa | | | | | | | | | | O.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SDR 41 | | SDR 26 | | SDR 21 | | SDR 17 | | SDR 13.6 | | |
| | PN 4 | | PN 6.3 | | PN 8 | | PN 10 | | PN 12.5 | | |
| | S | Weight | S | Weight | S | Weight | S | Weight | S | Weight | |
| mm | mm | Kg/m | mm | Kg/m | mm | Kg/m | mm | Kg/m | mm | Kg/m | mm |
| 20 | | | | | | | | | | | 20 |
| 25 | | | | | | | | | | | 25 |
| 32 | | | | | | | 2.0 | 0.197 | 2.4 | 0.234 | 32 |
| 40 | | | | | 2.0 | 0.25 | 2.4 | 0.28 | 3.0 | 0.36 | 40 |
| 50 | | | 2.0 | 0.32 | 2.4 | 0.37 | 3.0 | 0.45 | 3.7 | 0.55 | 50 |
| 63 | | | 2.5 | 0.48 | 3.0 | 0.58 | 3.8 | 0.72 | 4.7 | 0.87 | 63 |
| 75 | | | 2.9 | 0.69 | 3.6 | 0.82 | 4.5 | 1.01 | 5.6 | 1.24 | 75 |
| 90 | | | 3.5 | 0.97 | 4.3 | 1.18 | 5.4 | 1.47 | 6.7 | 1.78 | 90 |
| 110 | | | 4.2 | 1.44 | 5.3 | 1.78 | 6.6 | 2.18 | 8.1 | 2.63 | 110 |
| 125 | 3.1 | 1.23 | 4.8 | 1.85 | 6.0 | 2.27 | 7.4 | 2.77 | 9.2 | 3.39 | 125 |
| 140 | 3.5 | 1.55 | 5.4 | 2.33 | 6.7 | 2.84 | 8.3 | 3.48 | 10.3 | 4.25 | 140 |
| 160 | 4.0 | 2.00 | 6.2 | 3.05 | 7.7 | 3.74 | 9.5 | 4.55 | 11.8 | 5.54 | 160 |
| 180 | 4.4 | 2.49 | 6.9 | 3.81 | 8.6 | 4.69 | 10.7 | 5.75 | 13.3 | 7.03 | 180 |
| 200 | 4.9 | 3.05 | 7.7 | 4.72 | 9.6 | 5.81 | 11.9 | 7.10 | 14.7 | 8.59 | 200 |
| 225 | 5.5 | 3.87 | 8.6 | 5.92 | 10.8 | 7.34 | 13.4 | 8.99 | 16.6 | 10.96 | 225 |
| 250 | 6.2 | 4.85 | 9.6 | 7.34 | 11.9 | 8.99 | 14.8 | 11.02 | 18.4 | 13.50 | 250 |
| 280 | 6.9 | 6.00 | 10.7 | 9.16 | 13.4 | 11.35 | 16.6 | 13.86 | 20.6 | 16.90 | 280 |
| 315 | 7.7 | 7.54 | 12.1 | 11.67 | 15.0 | 14.26 | 18.7 | 17.54 | 23.2 | 21.43 | 315 |
| 355 | 8.7 | 9.60 | 13.6 | 14.92 | 16.9 | 18.11 | 21.1 | 22.33 | 26.1 | 27.16 | 355 |
| 400 | 9.8 | 12.16 | 15.3 | 18.70 | 19.1 | 23.09 | 23.7 | 28.23 | 29.4 | 34.45 | 400 |
| 450 | 11.0 | 15.33 | 17.2 | 23.64 | 21.5 | 29.19 | 26.7 | 35.76 | 33.1 | 43.68 | 450 |
| 500 | 12.3 | 19.09 | 19.1 | 29.16 | 23.9 | 36.07 | 29.7 | 44.18 | 36.8 | 53.84 | 500 |
| 560 | 13.7 | 23.78 | 21.4 | 36.55 | 26.7 | 45.08 | 32.2 | 55.34 | 41.2 | 67.55 | 560 |
| 630 | 15.4 | 30.07 | 24.1 | 46.31 | 30.0 | 56.95 | 37.4 | 70.09 | 46.3 | 87.7 | 630 |
| 710 | 17.4 | 38.28 | 27.2 | 58.87 | 33.9 | 72.5 | 42.1 | 88.94 | 52.2 | 108.1 | 710 |
| 800 | 19.6 | 48.54 | 30.6 | 74.56 | 38.1 | 91.9 | 47.4 | 112.7 | 58.8 | 137.4 | 800 |
| 900 | 22.0 | 61.23 | 34.4 | 94.68 | 42.9 | 116.2 | 53.3 | 142.5 | 66.1 | 173.8 | 900 |
| 1000 | 24.5 | 75.80 | 38.2 | 116.4 | 47.7 | 143.5 | 59.3 | 176.8 | - | - | 1000 |
| 1200 | 29.4 | 109.1 | 45.9 | 167.6 | 57.2 | 207.2 | 71.1 | 253.9 | - | - | 1200 |
| 1400 | 34.4 | 148.5 | 53.5 | 228.4 | 66.7 | 280.9 | | | | | 1400 |
| 1600 | 39.2 | 194.0 | 61.2 | 298.0 | 76.2 | 367.0 | | | | | 1600 |

| O.D. | PE100 Design Stress 8 MPa | | | | | | | | O.D. |
|---|---|---|---|---|---|---|---|---|---|
| | SDR 11 | | SDR 9 | | SDR 7.4 | | SDR 6 | | |
| | PN 16 | | PN 20 | | PN 25 | | PN 32 | | |
| | S | Weight | S | Weight | S | Weight | S | Weight | |
| mm | mm | Kg/m | mm | Kg/m | mm | Kg/m | mm | Kg/m | mm |
| 20 | | | 2.3 | 0.13 | 2.8 | 0.156 | 3.4 | 0.182 | 20 |
| 25 | 2.3 | 0.175 | 2.8 | 0.19 | 3.5 | 0.242 | 4.2 | 0.281 | 25 |
| 32 | 2.9 | 0.275 | 3.6 | 0.32 | 4.4 | 0.390 | 5.4 | 0.458 | 32 |
| 40 | 3.7 | 0.434 | 4.5 | 0.52 | 5.5 | 0.606 | 6.7 | 0.708 | 40 |
| 50 | 4.6 | 0.672 | 5.6 | 0.79 | 6.9 | 0.950 | 8.3 | 1.09 | 50 |
| 63 | 5.8 | 1.06 | 7.1 | 1.27 | 8.6 | 1.48 | 10.5 | 1.74 | 63 |
| 75 | 6.8 | 1.48 | 8.4 | 1.78 | 10.3 | 2.10 | 12.5 | 2.46 | 75 |
| 90 | 8.2 | 2.14 | 10.1 | 2.56 | 12.3 | 3.02 | 15.0 | 3.54 | 90 |
| 110 | 10.0 | 3.17 | 12.3 | 3.81 | 15.1 | 4.52 | 18.3 | 5.28 | 110 |
| 125 | 11.4 | 4.12 | 14.0 | 4.92 | 17.1 | 5.82 | 20.8 | 6.80 | 125 |
| 140 | 12.7 | 5.13 | 15.7 | 6.17 | 19.2 | 7.30 | 23.3 | 8.54 | 140 |
| 160 | 14.6 | 6.73 | 17.9 | 8.02 | 21.9 | 9.51 | 26.6 | 11.13 | 160 |
| 180 | 16.4 | 8.50 | 20.1 | 10.55 | 24.6 | 12.03 | 29.9 | 14.07 | 180 |
| 200 | 18.2 | 10.50 | 22.4 | 12.55 | 27.4 | 14.89 | 33.2 | 17.38 | 200 |
| 225 | 20.5 | 13.30 | 25.2 | 15.89 | 30.8 | 18.80 | 37.4 | 22.00 | 225 |
| 250 | 22.7 | 16.40 | 27.9 | 19.53 | 34.2 | 23.21 | 41.6 | 27.14 | 250 |
| 280 | 25.4 | 20.50 | 31.3 | 24.55 | 38.3 | 29.10 | 46.5 | 34.05 | 280 |
| 315 | 28.6 | 25.88 | 35.2 | 31.06 | 43.1 | 36.85 | - | - | 315 |
| 355 | 32.2 | 32.83 | 39.7 | 39.44 | 48.5 | 46.71 | - | - | 355 |
| 400 | 36.3 | 41.69 | 44.7 | 50.04 | - | - | - | - | 400 |
| 450 | 40.9 | 52.80 | 50.3 | 62.7 | - | - | - | - | 450 |
| 500 | 45.4 | 65.13 | - | - | - | - | - | - | 500 |
| 560 | 50.8 | 81.80 | - | - | - | - | - | - | 560 |
| 630 | 57.2 | 103.4 | - | - | - | - | - | - | 630 |
| 710 | 64.5 | 130 | - | - | - | - | - | - | 710 |
| 800 | - | - | - | - | - | - | - | - | 800 |
| 900 | - | - | - | - | - | - | - | - | 900 |
| 1000 | - | - | - | - | - | - | - | - | 1000 |
| 1200 | - | - | - | - | - | - | - | - | 1200 |
| 1400 | - | - | | | | | | | 1400 |
| 1600 | - | - | | | | | | | 1600 |

OD –Outside Diameter
S- Wall Thickness
SDR- Standard Dimension Ratio
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## Jointing Methods of Polyethylene Pipes

### ❖ *Compression fittings*

For small bore pipe connections up to size 125MM OD, compression type joints are satisfactory. The installation process started with the cutting of pipe ends square or 90º in relation to its axis. Fit the collar and clinching ring into the pipe and place the rubber O-ring at the tip of the pipe. Then push the body of the fitting until the pipe ends reaches its full stop. Slide the clinching ring and Collar(Nut) until it catches the fitting and tight fully using a belt or chain wrench.

### ❖ *Flange Adaptor*

This is another type of conventional mechanical jointing. A PE Flange adaptor(Stubend) is butt welded to the pipe with the loose steel backing flange inserted inside. A standard number of bolts will be fitted to tighten the connection. This type of connection is practical for application which requires easy serviceability in the future.

### ❖ *Butt Fusion Welding*

The process starts by cutting the pipe ends straight and square to the axis and cleaned carefully by an electric planer. The pipes and fittings are held tight and pressed against a coated heating plate. As soon as the heating time and the required bead are reached, the heating plate is quickly withdrawn from the weld faces and the connection are pressed together to form a permanent joint.

### ❖ *Electrofusion Welding*

This is an easy system for jointing pipes and fittings of PE. A pre-installed resistance wires are embedded in the inside surface of the electrofusion coupling. When the pipes or fittings are inserted in the coupling and the wires are connected to the welding unit, the contact surfaces become warm and consequently melt into each other until it forms a rigid and durable joint. A welding unit is available for this procedure which operates the timing automatically. This makes the whole operation very easy and practical especially in narrow and tight installations.






## Applications

High and medium density polyethylene pipe has proven to be a highly successful construction material for modern piping installations. Since its inception in the mid 1950's, polyethylene has been utilized for a broad array of piping applications such as follows;

- ❖ Pressure-rated potable water distribution
- ❖ Natural gas distribution
- ❖ Drainage and sewerage
- ❖ Oil and gas collection
- ❖ Marine outfalls
- ❖ Fire fighting networks
- ❖ Relining of old pipelines
- ❖ Laboratories and chemical industries
- ❖ Electrical Conduit and Fiber-optic ducts
- ❖ Mine slurry transportation,
- ❖ Irrigations and many others.

The expanding use of PE pipe has been the result of continual research and improvement in resin, pipe and installation technologies. Through these sustained efforts the role of PE pipe as a tough, durable piping product offering distinct advantages for various piping installations has continued to grow. Research and development has culminated in a new level of technical performance for polyethylene which is now in the increasing trend every year in the market place. PE 100 pipes offer unique technical and operational benefits. The recognized improvement in resistance to slow crack growth and rapid crack propagation afforded these PE piping products for an even larger role within the pipeline construction and operation industries.

**Drainage**

**Relining of old pipeline from different material**

**PE pipeline  for gas application**

**Fire fighting network**

**Irrigation PE Pipes**

**Infrastructure**

**Sea outfall pipes**

**Main portable water line**

## LDPE Pipes

EGPI LDPE (Low Density Polyethylene) pipes are intended to be used for drip and irrigation networks. This pipe optimizes the use of water by supplying controlled water at low pressure exactly where it is needed. LDPE is highly flexible and can be coiled at long lengths and can be bent easily during lay-out without the use of fittings. Connections are very convenient by the use of many types of plastic fittings and valves depending on direction and purpose.

Table 7 – LDPE Pipe Dimension based on DIN 8072 from sizes 16mm to 32mm OD

| Outside Diameter | Wall Thickness |
|---|---|
| 16 mm | 1.2mm / 1.5 mm |
| 20 mm | 1.5 mm |
| 25 mm | 1.5 mm / 2.0 mm |
| 32 mm | 2.0 mm |

Table 8 – LDPE Pipe Dimension based on Australian Std. AS 2698.1 for drip Irrigation Tubing(Type 30)

| Nominal Size (mm) | Inside Diameter (mm) | Wall Thickness (mm) | Weight (kg/m) |
|---|---|---|---|
| 13 | 12.9 | 1.2 | 0.051 |
| 16 | 16.0 | 1.2 | 0.062 |
| 19 | 19.1 | 1.3 | 0.080 |
| 25 | 25.4 | 1.5 | 0.121 |
| 32 | 31.7 | 2.0 | 0.200 |

Table 9 – Physical Properties of LDPE

| Property | Value |
|---|---|
| Density | 0.92 g/cm³ |
| Melt Index | 1.0 gm /10 min. |
| Brittleness Temperature | < - 70ºC |
| Tensile Strength | 11.5 Mpa |
| Elongation at Break | 800% |
| Flexural Modulus | 220 Mpa |
| Melting Temperature | 124 ºC |
| Carbon Black Content | 2% |

## QUALITY CONTROL

***Emirates Germany Pipes Industries*** (EGPI) is an accredited ISO9001:2008 company. It is also certified to ISO14001:2004 Environmental Management System and OHSAS18001:2007 Health & Safety Management System.

EGPI PE Pipes also got approvals from WRAS, U.K. and EXOVA, Sweden.

EGPI acquired top of the line laboratory equipment from Germany to ensure highest precision and best reliability of pipe testing. The quality system imposes stringent standards of quality control throughout the manufacturing process from raw material to finish product.




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APPROVED MATERIAL WRAS

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