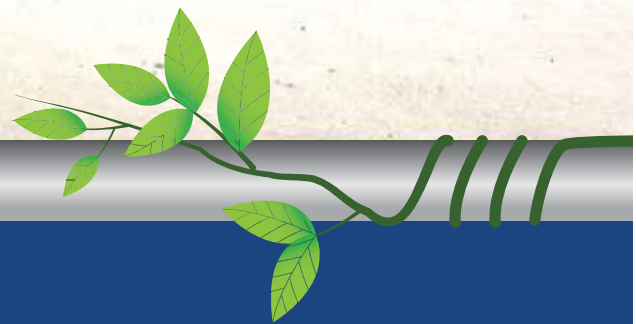


Since  
2000

PRODUCT  
CATALOGUE



EMIRATES PREINSULATED PIPES INDUSTRIES LLC



"Specialist in Pipe Insulation and HDPE Pipe Manufacturing"



email: [sales@eppi.ae](mailto:sales@eppi.ae)  
[www.eppi.ae](http://www.eppi.ae)



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# ABOUT US

Emirates Preinsulated Pipes Industries LLC (**EPPI**), a subsidiary of National Central Cooling Company PSC (Tabreed), was established in the year 2000. The company's primary objective is the production of preinsulated pipes and HDPE piping systems designed for various applications, including district cooling and heating, oil & gas, potable water, and similar sectors.

**EPPI** manufacturing facility is situated within the Industrial City of Abu Dhabi (ICAD-1), Musaffah, Abu Dhabi, UAE. It comprises two major factories, together encompassing an extensive area spanning 48,000 square meters. Our storage facilities have the capacity to store over 50 km of pipes in various sizes, along with numerous fittings and hundreds of tons of raw materials including both plastics and chemicals.



The range of products on offer to caters for a whole host of applications includes:

- a. Preinsulated carbon steel pipes and fittings
- b. Preinsulated HDPE pipes and fittings
- c. Preinsulated HDPE coil pipes.
- d. High Density Polyethylene (HDPE) Pipes and fittings
- e. Tubular sleeves (Rayjoints) for field joints

**EPPI** utilises cutting-edge polyurethane (PUR) foam dispensing and processing methods to guarantee the quality of the factory applied insulation. Our insulation procedures are at the forefront of the region, being entirely free of CFCs, thereby contributing to the reduction of ozone-depleting potential to ZERO. Additionally, our extrusion technology is state-of-the-art, featuring fully automated processes for the production of seamless, high-density polyethylene (HDPE) pipe profiles.

**EPPI's** quality management system holds ISO 9001 certification for its entire manufacturing process. We deliver high-quality products and offer comprehensive services, including stress analysis for piping systems, integration of leak detection surveillance systems, on-site technical support, and installation supervision whenever required.

**EPPI** is recognized as an approved vendor by leading organizations like ADNOC, ADDC, CMW, PGC and numerous other authorities and consultants. Our products undergo rigorous testing and certification by relevant regulatory bodies such as WRAS, ADQCC and Euro Heat & Power.



# 2. ECO PRIME

## Preinsulated Carbon Steel Piping System



### 2.1 Preinsulated Carbon Steel Pipes

#### 2.1.1 System in brief

The preinsulated pipe system is made up of steel carrier pipe, 100% CFC free polyurethane insulation foam and seamless solid wall HDPE jacket. The product typically follows EN253, the manufacturing standard for preinsulated pipes, and customer-specific project requirements.



assembly. Air vent plugs made of plastic are fitted on the metal end caps to let the air entrapped in the annular space between the core and the casing to dispense.

#### 2.1.2 Steel core pipe

**Types:** ERW (Electric resistance welded), SAW (Submerged arc welded) & Seamless

**Wall thickness:** Std, Sch 40, XS, others as dictated by project specs.

**Material:** API 5L Grade B, ASTM A53 Grade B, ASTM A106, others as dictated by project specs.

#### 2.1.3 Insulation

The insulation is made of 100% CFC free polyurethane foam. The required amount of foaming mixture, usually over packed is injected in to the cavity between the steel core and the casing pipe via the injection hole in the metal end caps at the top of the pipe

##### 2.1.3.1 Insulation physical properties

Thermal conductivity : In the range of 0.0230 to 0.0280 W/m<sup>2</sup>K as per ASTM C518

Core density : 48 to 90 kg/m<sup>3</sup> as per ASTM D1622

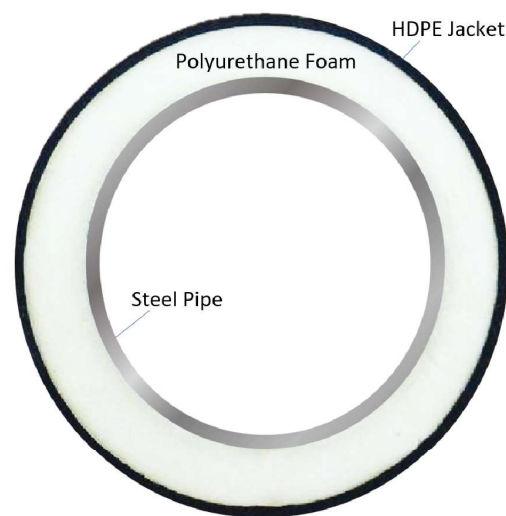
Compressive strength : 200 KPa upto 400 KPa as per the project specifications

PU system : Water, HCFC, HFO

Typical operating temperature: -17 to 120 C°

##### 2.1.3.2 High pressure PU injection

The expanding polyurethane foam flows between the specially designed foam spacers, completely filling the annular space while exerting pressure against the jacket, insuring that the jacket is water tight without any pin holes, cracks or crazes that can allow moisture penetration into the insulation.



## 2.1.4 Seamless HDPE casing

The casing is separately manufactured pipe of HDPE by extrusion process. The casing pipe material is black coloured PE containing antioxidants, UV stabilizers, carbon black is necessary for the manufacturing and meeting the EN253 specifications.

### 2.1.4.1 HDPE casing physical properties

Melt flow rate: 0.2 to 1.4 g/10 min @ 5kg/190°C  
Outer casing diameter/wall thickness: As per EN253  
Carbon black content: 2 to 3 % by mass  
Elongation at break : above 350% as per EN253  
Density : above 950 kg/m<sup>3</sup>



## 2.1.5 Steel blasting and coating

Blasting is a mechanical method of cleaning, utilizing steel shots or grits at high pressure. This is done automatically when a pipe is fed in to machine. The process is applicable to steel surfaces used primarily as core component of a product. Surface cleanliness is evaluated based on ASTM D2200 pictorial surface preparation for painting steel surfaces or based on ISO 8501-1 visual assessment of surface cleanliness. Surface profile is evaluated based on ASTM D4417 surface profile of blast cleaned steel or based on ISO 8503 surface roughness characteristics of blast-cleaned steel substrates.



Coating process is a method of protecting blasted surfaces by airless spray application at high pressure utilizing a range of coating systems to suit diverse requirements of the product. The process is applicable to all blasted surfaces of the steel core. The thickness of dry coating of pipe after the coating application of core component is measured based on ASTM D1186 non-destructive measurement of dry film thickness.

## 2.1.6 Standard pre insulated CS pipe dimensions

Steel - Core					HDPE Casing		PU Foam Insulation	*U - Value
Dia.		WT.			OD.	WT.	Thk.	
Inch	mm	Std	Sch 40	XS	mm	mm	mm	W/m <sup>2</sup> K
1	33.4	3.38	3.38	4.55	125	3.0	42.8	0.352
1.25	42.2	3.56	3.56	4.85	125	3.0	38.4	0.431
1.5	48.3	3.68	3.68	5.08	140	3.0	42.9	0.391
2.0	60.3	3.91	3.91	5.54	160	3.0	46.9	0.372
2.5	73.0	5.16	5.16	7.01	180	3.0	50.5	0.357
3.0	88.9	5.49	5.49	7.62	200	3.2	52.4	0.359
4.0	114.3	6.02	6.02	8.56	225	3.4	52.0	0.384
5.0	141.3	6.55	6.55	9.53	250	3.6	50.8	0.412
6.0	168.3	7.11	7.11	10.97	280	3.9	52.0	0.414
8.0	219.1	8.18	8.18	12.7	355	4.5	63.5	0.344
10.0	273.1	9.27	9.27	12.7	400	4.8	58.7	0.390
10.0	273.1	9.27	9.27	12.7	450	5.2	83.3	0.261
12.0	323.9	9.53	10.37	12.7	450	5.2	57.9	0.405
12.0	323.9	9.53	10.31	12.7	500	5.6	82.5	0.271
14.0	355.6	9.53	11.13	12.7	500	5.6	66.6	0.350
16.0	406.4	9.53	12.7	12.7	560	6.0	70.8	0.333
18.0	457.2	9.53	14.27	12.7	560	6.0	45.4	0.548
18.0	457.2	9.53	14.27	12.7	630	6.6	79.8	0.296
20.0	508.0	9.53	15.09	12.7	630	6.6	54.4	0.455
24.0	609.6	9.53	17.48	12.7	730	7.2	53.0	0.475
24.0	609.6	9.53	17.48	12.7	800	7.9	87.9	0.277
28.0	711.0	9.53	-	12.7	900	8.7	85.8	0.286
30.0	762.0	9.53	-	12.7	900	8.7	60.3	0.420
30.0	762.0	9.53	-	12.7	1000	9.4	109.6	0.220
32.0	812.8	9.53	17.48	12.7	1000	9.4	84.2	0.295
36.0	914.4	9.53	19.05	12.7	1100	10.2	82.6	0.304
40.0	1016.0	9.53	-	12.7	1200	11.0	81.0	0.313
42.0	1066.8	9.53	-	12.7	1200	11.0	55.6	0.465

\* K Value (Steel) -43.0 W/m<sup>2</sup>K, K Value (HDPE) -0.43 W/m<sup>2</sup>K, K Value (PU foam) -0.028 W/m<sup>2</sup>K

## 2.2 Preinsulated Carbon Steel Fittings

### 2.2.1 System in brief

The preinsulated carbon steel fitting system is made up of steel carrier fitting, 100% CFC free polyurethane and fabricated HDPE casing pipe. The product typically follows EN448, the manufacturing standard for preinsulated fittings, and customer specific project requirements.

### 2.2.2 Steel core fitting

The steel core fittings are made of carbon steel ASTM A234 and the dimensions are according to ASME B16.9. All procured steel fittings undergo factory fabrication process whereby a minimum of 300 mm steel pipe piece is welded to each end of the fitting.



### 2.2.3 Fitting insulation

The insulation is made of 100% CFC free polyurethane foam. The required amount of foaming mixture is injected into the cavity between the steel core fitting and the fabricated casing pipe via the injection hole in the metal end caps of the fitting assembly.

#### 2.2.3.1 Insulation physical properties

Thermal conductivity : In the range of 0.0230 to 0.0280 W/m<sup>2</sup>K as per ASTM C518

Core density : above 48 kg/m<sup>3</sup> as per ASTM D1622

Compressive strength : 200 KPa upto 400 KPa as per project specifications.

### 2.2.4 Moisture barrier

Factory applied end seals are provided at each exposed end of the insulation to prevent moisture ingress during storing, transportation and field handling.

### 2.2.5 Grooving

The factory is equipped with grooving facility to provide steel pipe ends with standard grooving dimensions. The pipes and the fittings with machined groove ends are insulated to the standard requirements. The grooved piping can be installed without any weld.

### 2.2.6 Casing fabrication

The casing fabrication is a method of fabricating casing components to be used for fittings, spools and other irregular-shaped configuration. This operation includes contour-forming, thermoplastic welding and other applicable methods to all pre-formed raw material casing such as thermoplastic (HDPE) and others.



## 2.2.7 Steel fabrication

The fabrication assembly operation involves cutting, end-preparation, tacking and welding.

### 2.2.7.1 Steel welding

This process covers manual welding of steel components of the product which will be performed by qualified welders under the steel fabrication sub-section. As part of the manufacturing overall workmanship requirements and standard method of operations, the welding process maintains the standard requirements of the American Petroleum Institute (API 1104), American Society of Mechanical Engineers (ASME) for Boiler and Pressure Vessel Code, Section IX. The Welding Procedure Specifications (WPS), Welding Performance Qualification (WPQ) of Welders or Welding Operators are pre-qualified and certified by an authorized independent laboratory.



#### A. Gas Tungsten Arc Welding

(GTAW) is a type of fusion process for joining metals commonly known as TIG welding (Tungsten inert gas) whereby it uses a continuous electrode for filler metal and an externally supplied gas for shielding.

#### B. Shielded Metal Arc Welding

(SMAW) is a type of fusion process for joining metals which is commonly called stick-electrode welding or manual welding.

### 2.2.7.2 Non destructive testing

All factory welded steel joints undergoes applicable non destructive testing (100%) namely RT, UT, MPI and LPI to assure the integrity of the fusion joints.

#### A. Radiography Testing

The process involves testing of steel material up to 50mm thickness and uses gamma ray sources. The test is based on ASME Sec 5, ASME Sec. 8 and API 1104.

#### B. Ultrasonic Testing

The process involves testing of steel component using ultrasonic flaw detector with a frequency range of 1-6 M Hz. The test is based on ASME Sec 5, ASME Sec. 8 and API 1104.

#### C. Magnetic particle inspection

Magnetic Particle Test is determines the discontinuities on the welded joint by wet or dry methods. This test is based on ASME Sec.5/ API 1104.

#### D. Dye Penetrant inspection

Dye Penetrant Test is determines the discontinuities on the welded joint using visible penetrants type water washable or solvent washable. This test is based on ASME Sec.5/API 1104.





# 3. ECO SMART

## Preinsulated HDPE Piping System



### 3.1 System in brief

The preinsulated HDPE pipe system is made up of HDPE carrier pipe or fittings, 100% CFC free polyurethane insulation foam and HDPE jacket.

Core pipe shall be rigid HDPE-PE100, in accordance with ISO 4427/DIN 8074/8075.

Thermal insulation is made of 100% CFC free polyurethane (PUR) foam; having a minimum density of 48 kg/m<sup>3</sup> and thermal conductivity coefficient ( $\lambda$ ) in the range of 0.0230 to 0.0280 W/m<sup>2</sup>K.

The outer casing or protective jacket shall be HDPE pipe, black, UV - resistant, having a minimum density of 950 kg/m<sup>3</sup>.

Preinsulated HDPE fittings are made up of fabricated HDPE fittings as per ISO4427, 100% CFC free polyurethane insulation foam and fabricated HDPE casing.

### 3.2 Dimensions

HDPE - Core (PE100)		HDPE Casing		PU Foam Insulation	
Dia.	WT. (mm)		OD.	WT.	Thk.
mm	SDR 17, PN10	SDR 11, PN16	mm	mm	mm
125	7.4	11.4	250	3.6	58.9
160	9.5	14.6	280	3.9	56.1
200	11.9	18.2	315	4.1	53.4
250	14.8	22.7	400	4.8	70.2
315	18.7	28.6	450	5.2	62.3
355	21.1	32.2	500	5.6	66.9
400	23.7	36.3	560	6.0	74.0
450	26.7	40.9	630	6.6	83.4
500	29.7	45.4	630	6.6	58.4
560	33.2	50.8	730	6.6	78.4
630	37.4	57.2	800	7.9	77.1

\* Pipe sizes above 630mm are upon request



# 4. EPPI FLEX

## Preinsulated Flexible Pipes



### 4.1 System in brief

The Preinsulated HDPE coil pipe (EPPI-Flex) is made up of HDPE coil pipe, 100% CFC free Polyurethane insulation foam and corrugated LDPE seamless casing.

EPPI-Flex is durable and light weight, buried faster, installation and more economical to fix. EPPI-Flex installation is very ideal for conditions in the Middle East due to its availability in long lengths that can be custom cut to fit any application. It is easier to handle and requires less number of joints.



### 4.2 Core pipe

Core pipe shall be flexible HDPE-PE100 in accordance with ISO 4427/DIN 8074/DIN 8075 and with pressure rating of 16 bar (SDR11)

### 4.3 Insulation

Thermal insulation shall be closed cell CFC polyurethane (PUR) foam; having a density of 48 kg/m<sup>3</sup>(minimum) and thermal conductivity coefficient ( $\lambda$ ) of 0.0280 W/m<sup>2</sup>K maximum. The foam insulation is applied over the pipe and then the seamless corrugated LLDPE jacket is extruded around it.



### 4.4 Casing pipe

The outer casing or protective jacket shall be made of extruded corrugated LLDPE pipe black UV-resistant, having a density above 923 kg/m<sup>3</sup>.

### 4.5 Pre insulated flexible pipe dimensions

HDPE Core/PE100 SDR11			LLDPE - Casing		Insulation	
OD.	WT.	Coil Length.	OD.	WT.	Material.	Thickness.
mm	mm	M	mm	mm	-	mm
25	2.3	100	110	2.4	PUF	40.1
32	2.9	100	110	2.4	PUF	36.6
40	3.7	100	110	2.4	PUF	32.6
50	4.6	100	110	2.4	PUF	27.6
63	5.8	100	140	3.0	PUF	35.5
75	6.8	100	140	3.0	PUF	29.5
90	8.2	100	160	3.0	PUF	31.8

# 5. HDPE

## Pressure Pipes



### 5.1 Product in brief

HDPE is a polyethylene thermoplastic made from petroleum. HDPE pipe is ideal for many different applications including water supply, sewage, industrial effluent disposal, agriculture, irrigation, drainage and many more.

HDPE pipe is also more environmentally sustainable option as it is non-toxic, corrosion and chemical resistant, has a long design life, and is ideal for trenchless installation methods because of its flexibility.



Eppi plastic division manufacture High Density Polyethylene Pipes using the most reliable extrusion machineries. The size ranges from (OD) 25mm to 1200mm and the PN from 6 bars to 20 bars.



### 5.2 Maximum Operating Pressure

The maximum operating pressure (MOP) in bar which is allowed in continuous use is given by  $MOP = 20 \times \text{Allowable Design Stress} / (SDR-1)$  (Example: Allowable design stress is 8 MPa at 20 degree centigrade for PE100)

### 5.3 Physical characteristics

Characteristics	Test Methods	Typical Values
Elongation @break	ISO 6259-1 / ISO 6259-3	> 600%
Longitudinal Reversion	ISO 2505	< 3%
Melt Flow Rate	ISO 1133	0.25 g/10 min@190°C/5 kg.
Carbon black content	ISO 6964	2.5 %
Density	ISO 1183-2	> 960 kg/m <sup>3</sup>
Oxidation Induction @210°C	ISO 11357	> 20 min.

Approval Number 2212551  
Test Report: J-40438599

19<sup>th</sup> January 2023

Emirates Preinsulated Pipes Industries LLC,  
PO Box 73830,  
ICD-1,  
Musaffah,  
Abu Dhabi,  
United Arab Emirates




Water Regulations Approval Scheme Ltd,  
Unit 13,  
Willow Road,  
Pen Y Fan Industrial Estate,  
Crumlin,  
Gwent,  
NP11 4EG

**WATER REGULATIONS APPROVAL SCHEME LTD. (WRAS)**  
**MATERIAL APPROVAL**

The material referred to in this letter is suitable for contact with wholesome water for domestic purposes having met the requirements of BS9920-1:2000 and/or 2014 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water'.

The reference relates solely to its effect on the quality of the water with which it may come into contact and does not signify the approval of its mechanical or physical properties for any use.

5240

**POLYETHYLENE- COMPONENTS:**

PE100-RC, Black colour, extruded HDPE pipe. For use with water up to 60°C.

**APPROVAL NUMBER: 2212551**  
**APPROVAL HOLDER: EMIRATES PREINSULATED PIPES INDUSTRIES LLC.**

The Scheme reserves the right to review approval.  
Approval 2212551 is valid between December 2022 and December 2027

An entry, as above, will accordingly be included in the Water Fittings Directory on-line under the section headed, 'Materials which have passed full tests of effect on water quality'.

The Directory may be found at: [www.wras.gov.uk/approvals-directory/](http://www.wras.gov.uk/approvals-directory/)

Yours Faithfully

  
Ian Hughes  
WRAS Approval Manager

---

The Water Regulations Approval Scheme Ltd. Registered in England No. 132234 Registered office: 10 Lark Rise, Foundry Drive, Stevenage, SG7 2EP  
Tel: +44(0)1455 244 666 Fax: +44(0)1455 244 666 Email: [enquiries@wras.gov.uk](mailto:enquiries@wras.gov.uk) [www.wras.gov.uk](http://www.wras.gov.uk)  
WRAS Approval 20271 ver 2.0 Page 1 of 9

## 5.4 Standard HDPE pipe dimensions (PE100) as per ISO 4427

Nominal Size, OD	PN 20 / SDR 9 W.T.	PN 16 / SDR 11 W.T.	PN 12.5 / SDR 13.6 W.T.	PN 10 / SDR 17 W.T.	PN 8 / SDR 21 W.T.	PN 6 / SDR 26 W.T.
25 mm	3.0 mm	2.3 mm	2.0 mm	-	-	-
32 mm	3.6 mm	3.0 mm	2.4 mm	2.0 mm	-	-
40 mm	4.5 mm	3.7 mm	3.0 mm	2.4 mm	2.0 mm	-
50 mm	5.6 mm	4.6 mm	3.7 mm	3.0 mm	2.4 mm	2.0 mm
63 mm	7.1 mm	5.8 mm	4.7 mm	3.8 mm	3.0 mm	2.5 mm
75 mm	8.4 mm	6.8 mm	5.6 mm	4.5 mm	3.6 mm	2.9 mm
90 mm	10.1 mm	8.2 mm	6.7 mm	5.4 mm	4.3 mm	3.5 mm
110 mm	12.3 mm	10.0 mm	8.1 mm	6.6 mm	5.3 mm	4.2 mm
125 mm	14.0 mm	11.4 mm	9.2 mm	7.4 mm	6.0 mm	4.8 mm
140 mm	15.7 mm	12.7 mm	10.3 mm	8.3 mm	6.7 mm	5.4 mm
160 mm	17.9 mm	14.6 mm	11.8 mm	9.5 mm	7.7 mm	6.2 mm
180 mm	20.1 mm	16.4 mm	13.3 mm	10.7 mm	8.6 mm	6.9 mm
200 mm	22.4 mm	18.2 mm	14.7 mm	11.9 mm	9.6 mm	7.7 mm
225 mm	25.2 mm	20.5 mm	16.6 mm	13.4 mm	10.8 mm	8.6 mm
250 mm	27.9 mm	22.7 mm	18.4 mm	14.8 mm	11.9 mm	9.6 mm
280 mm	31.3 mm	25.4 mm	20.6 mm	16.6 mm	13.4 mm	10.7 mm
315 mm	35.2 mm	28.6 mm	23.2 mm	18.7 mm	15.0 mm	12.1 mm
355 mm	39.7 mm	32.2 mm	26.1 mm	21.1 mm	16.9 mm	13.6 mm
400 mm	44.7 mm	36.3 mm	29.4 mm	23.7 mm	19.1 mm	15.3 mm
450 mm	50.3 mm	40.9 mm	33.1 mm	26.7 mm	21.5 mm	17.2 mm
500 mm	55.8 mm	45.4 mm	36.8 mm	29.7 mm	23.9 mm	19.1 mm
560 mm	62.5 mm	50.8 mm	41.2 mm	33.2 mm	26.7 mm	21.4 mm
630 mm	-	57.2 mm	46.3 mm	37.4 mm	30.0 mm	24.1 mm
710 mm	-	64.5 mm	52.2 mm	42.1 mm	33.9 mm	27.2 mm
800 mm	-	-	58.8 mm	47.4 mm	38.1 mm	30.6 mm
900 mm	-	-	66.2 mm	53.3 mm	42.9 mm	34.4 mm
1000 mm	-	-	-	59.3 mm	47.7 mm	38.2 mm
1200 mm	-	-	-	67.9 mm	57.2 mm	45.9 mm

**PN-Nominal Pressure in Bar**

**W.T- Wall thickness in mm**

(Dimensions in the table are the most common requirements in the market. However other specific dimensions and PE Grade can be extruded as per customer requirements)

# 6. ECO LITE

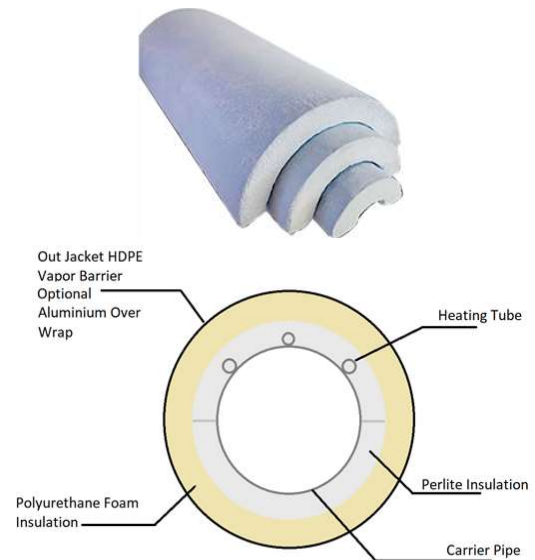
Preinsulated Piping System for Oil & Gas



## 6.1 System in Brief

**Eco Lite** is our pre-insulated polyurethane-perlite composite pipe. Designed to meet the highest industry standards specially for Oil & Gas application (typically operating temperature above 150°C), these pipes combine the benefits of polyurethane and perlite to deliver exceptional thermal insulation, durability, and performance.

Our pre-insulated polyurethane-perlite composite pipes, specifically engineered to excel in various applications, provide excellent temperature retention, minimizing heat loss or gain and ensuring energy efficiency.



## 6.2.1 Polyurethane Insulation

One of the key features of “**Eco Lite**” is the utilization of polyurethane foam insulation. Polyurethane is known for its exceptional insulation properties, effectively reducing heat transfer and preventing energy wastage. The high-density foam acts as a reliable barrier, maintaining the desired temperature of the fluid inside the pipe.

## 6.2.2 Perlite Insulation

The inclusion of perlite in conjunction with polyurethane in our composite pipes further enhances their insulating capabilities. Perlite, a naturally occurring volcanic glass, is lightweight and has excellent thermal resistance. By incorporating perlite within the pipe insulation, we achieve additional insulation benefits, enhancing the overall thermal performance of the system.

## 6.3 Application

One of the applications of these pipes is transporting liquid sulphur through insulated and heat traced pipelines. Pre-insulated heat traced sulphur piping system with heat tracing, perlite insulation of service pipe. Further there is polyurethane foam insulation and outer jacket of HDPE as vapor barrier. Heat tracing and controlling allows sulphur to be transported at temperature of 135°C.



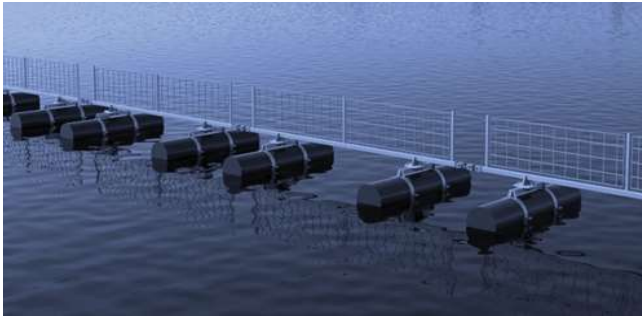
# 7. ECO ENHANCE

■ Customized Solutions



## 7.1 Customized Solutions

EPPI provides customized solutions under the umbrella of **Eco Enhance**. EPPI facility is equipped with skilled work force and has technology to fabricate custom made HDPE products. Customised solutions are used in various industries and applications.



## 7.2 HDPE pontoons

EPPI provides customized HDPE pontoons used in marine application as barrier and used when maximum security is required. It is designed to stop Multiple boat and swarm attacks, Slow speed, heavy tonnage vessels and High speed, lower tonnage vessels.

### 7.2.1 Durability

HDPE pontoon's thickness and diameter produce structural strength sufficient to withstand the weight of the heavy steel beam and netting so that the entire system can stop high-energy vessels.

### 7.2.3 Low maintenance

It uses composite materials, has a simple system structure, and has as few parts as possible to support easy and low-cost inspection and maintenance.



# 8. ACCESSORIES



## 8.1 Leak detection system

A leak detection system can be an integral part of the piping system, utilizing monitoring wires embedded in the foam insulation, connected to an individual line monitoring unit.

### 8.1.1 Leak detection System TDR - Ratmon ILA 1.0

Leak detection and location in pre-insulated pipes District heating and cooling Monitors up to 6000m of sensor cable / 3000m of pipe 2-looped sections of networks and if unlooped then 4-not looped sections

Accuracy:  $\pm 0.1\%$  of range  $\pm 2m$

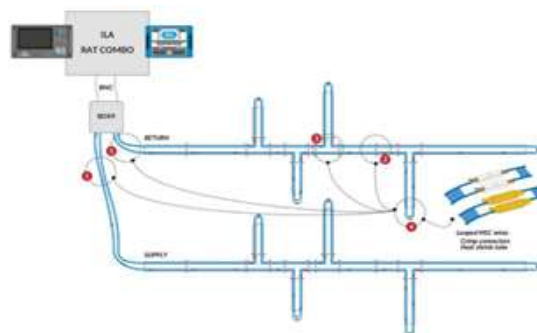
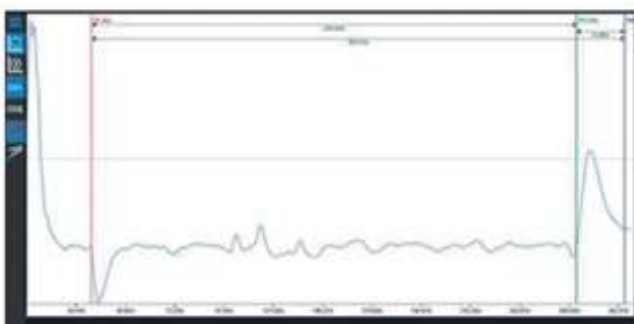
Display: LCD touch screen

Alarm indication: Visualisation on screen, buzzer



- District cooling - MSC-1 sensor cable
- District heating, steel pipes - cooper wires
- District heating, plastic pipes - MSC-1 sensor cable

<b>Leak Identification:</b>	Fault detection and location (leak/break/short)
<b>BMS &amp; SCADA</b>	YES
<b>Memory (fault &amp; alarm date):</b>	YES
<b>External communication:</b>	Ethernet (RJ 45) GPRS Communication with PC by USB or wireless Relay (BMS, SCADA) Communication with external systems by BACnet Converter Detector positioning and status on Google Maps Communication with RATMON system
<b>Power Supply:</b>	12V DC / 120-240V AC
<b>Working Temperature:</b>	-20 / 70°C
<b>Battery Back-up:</b>	Internal battery
<b>Housing:</b>	IP54/IP65 (in external cabinet)



## 8.1.2 Leak detection system - CWA

A leak detection system can be an integral part of the piping system, utilizing two monitoring wires embedded in the foam insulation, connected to an individual line monitoring unit.

- Sensing water, hydrocarbons, solvents and mixtures
- Monitors up to 4000 m of piping from one unit
- Leaks are detected and located directly and within +/- 1% of the distance displayed
- 3 security levels with separate passwords and personal codes
- 20 years of experience in pipe monitoring systems



9000 Series



6000 Series

## 8.2 Field insulation methods for preinsulated pipes

The field joint is the area where two pipe joints meet and that must be thermally insulated after field welding or other mechanical joining methods.

### 8.2.1 GI sheet – Installation and foaming

The GI sheet field insulation consist of polyurethane foam chemicals (2-components) poured into a sheet metal roll-up wrapped around the joint. A heat shrinkable sleeve with closure patch is applied and heat shrunk to finish the joint.



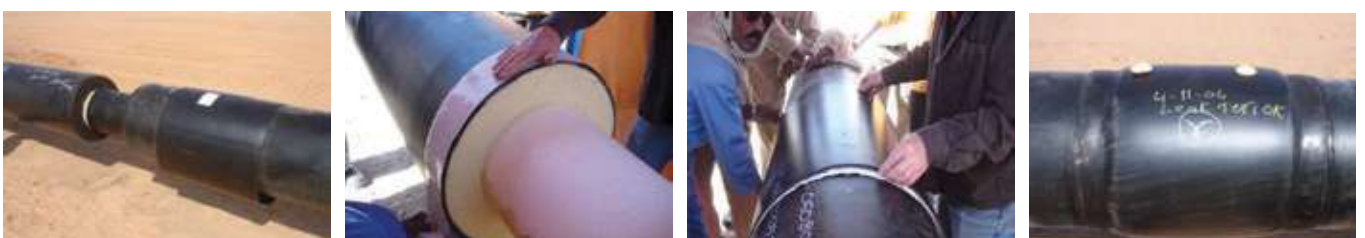
### 8.2.2 HDPE – installation and foaming

The HDPE field joint insulation consists of polyurethane foam chemical (2-component) poured into the HDPE roll-up fused around the joint by extrusion welding.



### 8.2.3 Rayjoint – Installation and foaming

Rayjoint field insulation consist of polyurethane foam chemicals (2-components) poured in a heat shrinkable tubular sleeve (Rayjoint), fixed around the joint and its ends are heat-shrunk to finish the joint. The Rayjoint heat shrinkable tubular sleeve is pressure testable.





### 8.2.3.1 System in brief

Rayjoint is used as a field joint material when the preinsulated pipes and fittings are joined at field. The rayjoint can be pressure tested at 0.5 bar. The product is stored in a covered storage area, individually packaged to avoid direct sunlight exposure.



EPPI is equipped with the facility to produce tubular shrinkable HDPE coupling (Rayjoint). The standard size ranges from 90 mm to 1600 mm in diameter. The Rayjoint system has successfully undergone sandbox test as per EN489.



Tensile strength-above 17MPa@100 cycles according to EN489 and water permeability test according to EN489 at a third-party facility.

### 8.2.3.2 Rayjoint physical properties

Material : Cross linked polyethylene  
 Tensile strength : above 17 MPa@23° C  
 Ultimate elongation : above 500%@23° C



### 8.2.3.3 Rayjoint dimensions

Casing. OD.	RJC. ID.	RJC. WT.	Width.	Rayjoint.
mm	mm	mm	mm	RJC
90	110	2.4	660	RJC-90
110	133	2.4	660	RJC-110
125	150	2.4	660	RJC-125
140	165	2.4	660	RJC-140
160	185	2.4	660	RJC-160
180	210	2.4	660	RJC-180
200	230	2.4	660	RJC-200
225	250	2.4	660	RJC-225
250	280	2.4	660	RJC-250
280	320	2.4	660	RJC-280
315	355	3.2	660	RJC-315
355	394	3.2	660	RJC-355
400	447	3.2	660	RJC-400
450	498	3.2	660	RJC-450
500	551	3.2	660	RJC-500
560	615	4.0	660	RJC-560
630	687	4.0	660	RJC-630
710	771	4.8	660	RJC-710
800	867	4.8	660	RJC-800
900	971	5.6	660	RJC-900
1000	1075	6.4	660	RJC-1000
1100	1179	6.4	660	RJC-1100
1200	1283	7.2	660	RJC-1200
1300	1387	8.0	660	RJC-1300
1400	1491	8.0	660	RJC-1400
1500	1594	8.8	660	RJC-1500
1600	1697	8.8	660	RJC-1600

# 9. QUALITY AT WORK



EPPI quality management system is certified as per ISO 9001:2015 requirements. Surveillance audits are conducted annually by a third party. The factory is equipped with a lab facility to conduct all the applicable tests for the preinsulated pipes and extruded high density polyethylene core and casing pipes. The tests are done as per various international standards ASTM/ISO /EN etc.

- a. Thermal conductivity
- b. Density
- c. Compressive strength
- d. Water absorption
- e. Longitudinal reversion
- f. Carbon black content
- g. Hydrostatic strength
- h. Tensile strength
- i. Percentage elongation
- j. Melt flow rate
- k. NDT for steel welding (RT/UT/LPI/MPI)
- l. Coating testing (Holiday/DFT)

## EUROHEAT & POWER

CERTIFICATE NUMBER 01/37

<b>PRODUCT</b>	EPPI pre-insulated district heating pipes, single pipe system, with service pipes DN 15 – 1000 and casing pipes 125 – 1200 mm
<b>LICENSEE</b>	Emirates Preinsulated Pipes Industries LLC P.O. Box 73830, ICAD-1 Abu Dhabi United Arab Emirates
<b>PRODUCTION PLANT</b>	Emirates Preinsulated Pipes Industries LLC P.O. Box 73830, ICAD-1 Abu Dhabi United Arab Emirates



GUIDELINES: EMP/001  
CERTIFICATE: 01/37

VALID UNTIL 20.03.2024

This certificate is granted in accordance with the Euroheat & Power Certification Guidelines for Quality Assessment of District Heating Pipes [001]

Heading Signature: *[Signature]*  
Uthman Al-Musoon

Date: Place  
20.03.2018, Borås



RISE Research Institutes of Sweden  
P.O. Box 857  
SE-50115 Borås  
Sweden  
www.rise.se

The production complies with EN 12052 and EN 12053 and ISO 9001:2015. The license may also be used for the production of district heating pipes. The certificate is valid only for the production plant mentioned in the certificate. The materials used are contained in the confidential Annex to the certificate. The certificate is valid for 4 years subject to periodic surveillance. Revision is automatic.

Refer to the Euroheat & Power Certification Guidelines [001] for full requirements and conditions

c e r t i f i c a t e



## Certificate of Registration

This is to certify that the Management System of:  
Emirates Preinsulated Pipes Industries L.L.C. (EPPI)

P.O. Box 73830, Abu Dhabi Industrial City (ICAD - 1), Musaffah, Abu Dhabi,  
United Arab Emirates

has been approved by Alcumus ISOQAR and is compliant with the requirements of:

ISO 9001:2015



Certificate Number: 22338-015-001  
Initial Registration Date: 05 April 2016  
Previous Expiry Date: 04 April 2022  
Recertification Date: 04 January 2022  
Re-issue Date: 14 December 2022  
Current Expiry Date: 04 April 2025

### Scope of Registration:

Manufacturing, Engineering and Sales of Preinsulated Piping System including: High Density Polyethylene Pipes, High Density Polyethylene Preinsulated Flexible Pipe and High Density Polyethylene Shrinkable Coupling.

Signed:  
Alyn Franklin, Chief Executive Officer  
(on behalf of Alcumus ISOQAR)

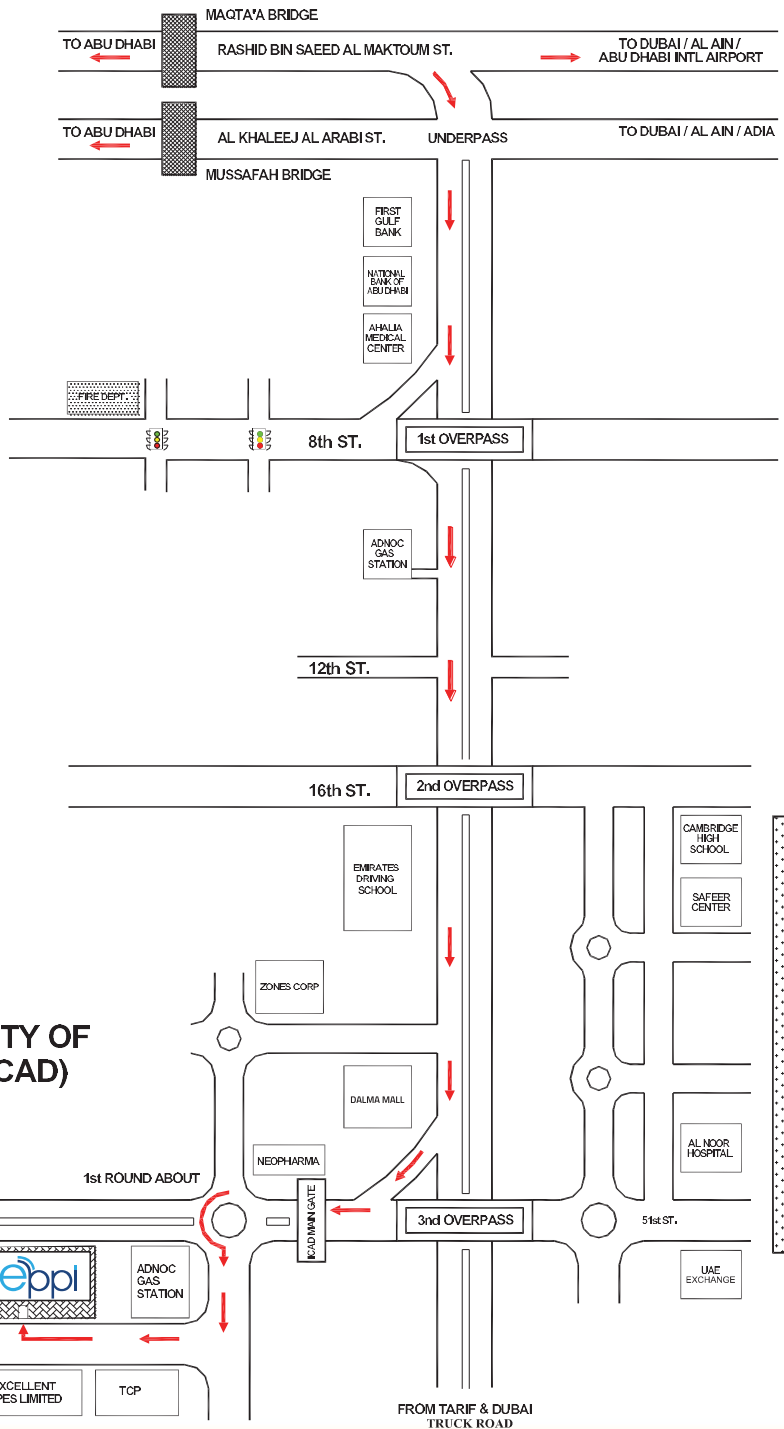
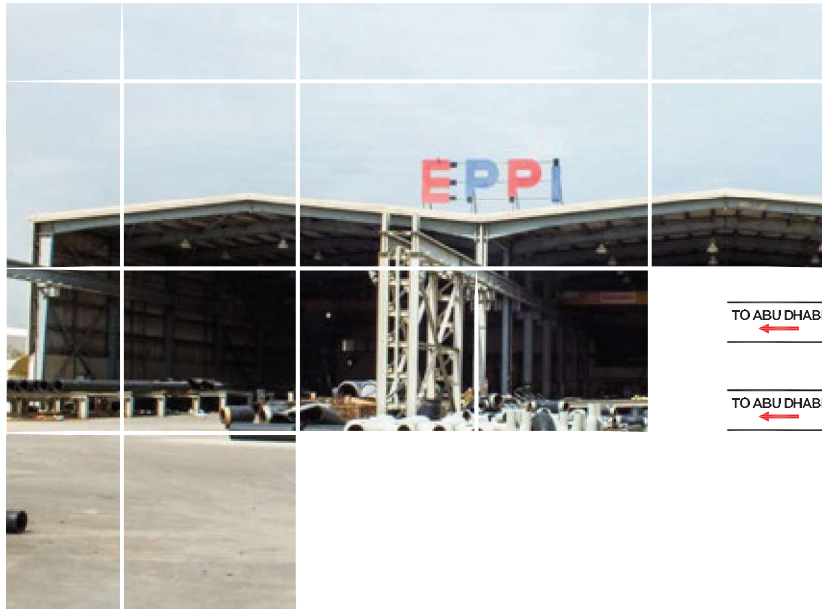
*[Signature]*

This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by Alcumus ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standard's requirement may be obtained by contacting Alcumus ISOQAR.

Alcumus ISOQAR Limited, Alcumus Certification, Cobra Court, 1 Blackmore Road, Strefford, Manchester M32 0QY.  
T: 0161 865 3099 F: 0161 865 3065 E: isoqa@alcumus.com W: www.alcumusgroup.com  
This certificate is the property of Alcumus ISOQAR and must be returned on request.







**INDUSTRIAL CITY OF  
ABU DHABI (ICAD)**

2nd ROUND ABOUT

1st ROUND ABOUT

UNION PIPE  
INDUSTRY

EXCELLENT  
PIPES LIMITED

TCP

FROM TARIF & DUBAI  
TRUCK ROAD



Emirates Preinsulated Pipes Industries L.L.C.  
P.O.Box 73830, Industrial City of Abu Dhabi  
Musaffah, Abu Dhabi, UAE  
Tel: +971 2 550 1991

✉ sales@eppi.ae 🌐 www.eppi.ae