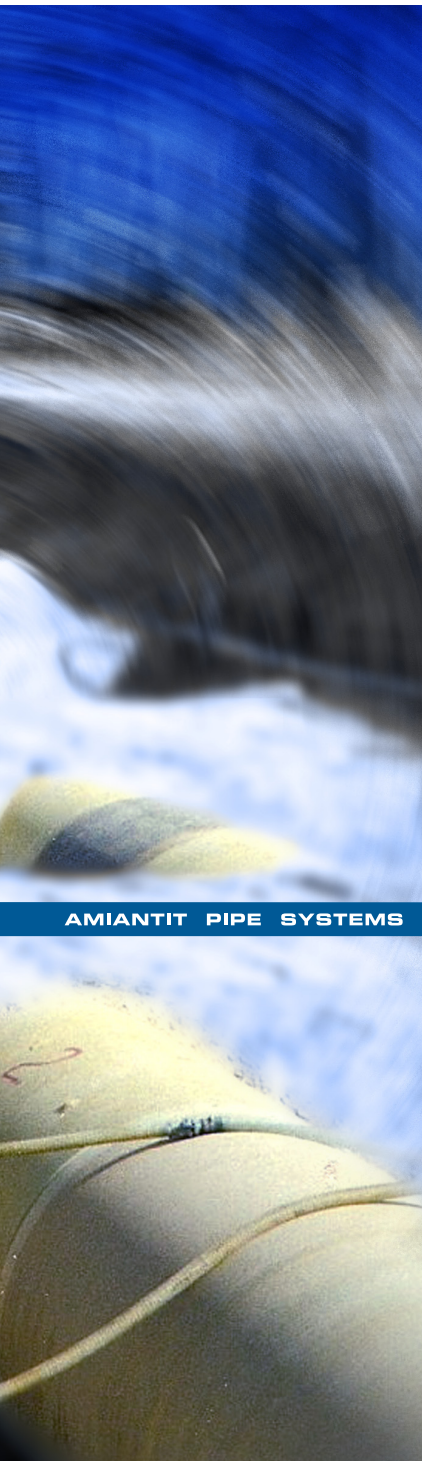




United Olefins Complex Project

Jubail, Saudi Arabia



Overview

Jubail United Petrochemical Company (JUPEC) is a wholly owned subsidiary of Saudi Basic Industries Corporation (SABIC), a Saudi Arabia based non-oil industrial company.

Main element of the JUPEC complex is a cracker producing 1 million ton/year of ethylene and located in Jubail Industrial City, Saudi Arabia.

During 2002 JUPEC awarded Fluor Daniel for the construction and procurement contract for the ethylene glycol production plant, After 2 years construction time, the whole plant installation was completed in 2004.

Amiantit Fiberglass® Industries Ltd (AFIL) was commissioned in 1977 as a Flowtite® GRP pipes and fittings manufacturer, at the first industrial area in Dammam Saudi Arabia. Which represents the state of the art in GRP pipe production. This process allows the use of continuous glass fibre reinforcements in the circumferential direction.

AFIL has supplied and supported its products nationally and internationally and delivered to destination farther than 10000km (6213 Miles), from countries at the Mediterranean Sea like Egypt, Syria, Libya to countries at the Pacific Ocean like Hong Kong, New Zealand and Australia. AFIL also supplied to middle and south Asian countries like Malaysia, Singapore, India, Iran, Pakistan and Turkmenistan.



Project

The united Olefins Complex in Jubail was established by the Jubail United Petrochemical Co. (United). Major requirement of this project was a system of supply and return sea water cooling bypass pipelines. Sea water is one of the most corrosive fluids in long term applications, creating a problem for industrial operations where this fluid is an important element of their manufacturing process To avoid substantial maintenance and repairs costs on sea water transportation pipelines, it is essential to use pipes made from corrosion resistant material. Over the years, many different types of pipes have been tried and failed; whereas AFIL's Flowtite® GRP pipes systems has succeeded in meeting the requirements of being non-corrosive and virtually maintenance free.



That's why Amiantit Fiberglass® Industries Ltd. (AFIL) was chosen to supply more than 2000 meters of Flowtite® GRP pipes systems for underground and huge spools for the aboveground installation.

Installation in the shortest possible time has become a major production target in the construction business. Flowtite® GRP pipes systems are lightweight and they are therefore easy to transport, handle and install.

AFIL's Flowtite® GRP was among many other pipe manufacturers bidding for the project, but due to its superiority in engineering, international reputation and:

- Inherent corrosive resistance
- Long life cycle
- Easy installation
- Very low maintenance
- Various range of joint systems.
- Light weight

AFIL was awarded to supply the pipes to the project.

In addition to the described project, Flowtite® pipes systems can also be used in:

- Water transmission and distribution.
- Sanitary sewerage collection systems and outfalls.
- Storm water.
- Hydropower.
- Seawater intake and outfalls.
- Circulating cooling water in power plants.
- Industrial applications.

Product Range

Jubail United Petrochemical Company (JUPC) used a variety range of Flowtite® GRP pipes. The contractor installed pipe diameters ranging from DN 50-2700mm with a pressure class of PN 8 and PN 12 bar and in stiffness classes of SN2500 N/m² and SN10000 N/m². All pipes were designed for an operating temperature of 60° to 65° C

Other than the diameters listed in this project AFIL's Flowtite® GRP pipe systems can be supplied in the following standard diameter range. Tailor made diameters can be supplied on request.

80	100	150	200	250	300	350	400	500
600	700	800	900	1000	1100	1200	1300	1400
1500	1600	1700	1800	1900	2000	2100	2200	2300
2400	2500	2600	2700	2900	3000	3100	3200	3300
3400	3500	3600	3700	3800	3900	4000		

AFIL Standard diameters in mm

In addition to the pipes, a wide range of Flowtite® GRP fittings and accessories are offered by AFIL and its affiliates throughout the world. This includes:

- Elbows
- Tees, Wyes and Nozzles
- Reducers
- Flanges
- Bulkheads
- Saddles
- Tapping



Installation

The installation methods used in this project were an underground and aboveground installation.

Underground installation (UG):

Is a common installation method for Flowtite® GRP pipes. For this project, a normal trench was dug and the GRP pipes were installed. The single pipes were joint together using the butt-and-wrap process.

Aboveground installation (AG):

Means the installation of pipes on aboveground level. The pipeline is fully exposed and supported on cradles. This method is often used inside plants and it may require detailed stress analysis to ensure proper performance. The support can be made of concrete, steel or GRP. Usually the pipe segments are installed with rigid butt straps (B/S) or Butt-and-Wrap joints and flanged joints. Flexible coupling joints can also be used in AG installation using different supporting systems.

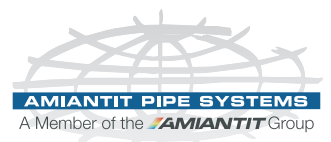


Project Data sheet

General	Project	United Olefins Complex Project
	Client	Jubail United Petrochemical Company (JUPEC)
	Contractor	Fluor Daniel International Inc.
	Location	Kingdom Of Saudi Arabia – Jubail Industrial City
Product Specification and information	Installation	Above / Underground
	Application	Sea Water
	Diameter(DN), mm	50 - 2700
	Pressure(PN), bar	8 and 12
	Stiffness(SN), N/m ²	10000 for Dia. < DN 350mm 2500 for Dia. > DN 450mm
	Design Temp °C	60° - 65°C



Utmost Care has been taken to ensure that all the contents of this brochure are accurate. However, Amiantit and its subsidiaries do not accept responsibility for any problems which may arise as a result of errors in this publication. Therefore customers should make inquiries into the potential product supplier and convince themselves of the suitability of any products supplied or manufactured by Amiantit and/or its subsidiaries before using them.



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