Opportunities for Plastic Pipes in Middle East

Lucintel Brief

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• Plastic Pipe Market Overview

• Plastic Pipe Market Opportunity in Middle East

• Competitive Analysis

• Investment Analysis

• About Lucintel
Executive Summary

- Middle east plastic pipe market was estimated at $2.9 B in 2019 and is expected to grow with a CAGR of 8.2% in the next five years to reach $4.2 B in 2025
  - Middle east plastic pipe market accounted for 4% of the global plastic pipe market in 2019 and is the second fastest growing region in the next five years after Asia-Pacific
  - Continuous investment in water infrastructure, building & construction, and oil & gas industry are the growth drivers for plastic pipe market in Middle East
  - High corrosion and chemical resistance, lightweight, low installation time, ease of installation, durability are the major advantages of plastic pipe over metal and concrete pipes
- PE and PVC accounts for 90% of the total plastic pipes market in Middle East in 2019
- Water supply and sewage (drainage) are the major applications of plastic pipes, constitute together more than 60% share of the Middle East plastic pipe market
- PE and PVC pipes are likely to experience higher growth among all plastic pipes in the next five years in Middle East
- Thermoplastic pipes such as PVC and PE are manufactured through extrusion process whereas FRP pipe is manufactured through filament winding process
- The cost of extrusion and filament winding process ranges from $0.2 to $5 million depending upon the plant capacity and equipment type
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Global Pipe Market is Highly Dominated by Metal Pipes

Types of Raw Materials Used in the Pipe Application

Metal Pipes
- Steel
- Ductile Iron
- Others

Non-Metal Pipes
- Plastics
- Fiber Reinforced Plastics
- Concrete

Degree of Usage
- Very High
- Very Low

High Growth Segments
Plastic Pipe Market: Overview

Key Insights

• Plastic pipes are mostly used for carrying and transporting water, sewage, gas, and chemicals from one place to another
• Plastic pipes are replacing steel pipes in most of the applications, mainly due to better corrosion and chemical resistance, lightweight and durability
• Asia-Pacific is the largest market for plastic pipes, followed by North America, Europe, Middle East and Rest of the world
• PVC is the most widely used material in manufacturing plastic pipes. About 40% of the total global PVC is used for manufacturing pipes and fittings
• PE pipes and fiber reinforced pipes (FRP) pipes are likely to register higher growth in the next five years

<table>
<thead>
<tr>
<th>Major Pipe Manufacturers</th>
<th>Major Materials</th>
<th>Major Applications</th>
<th>Major Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lesso Group</td>
<td>• PVC</td>
<td>• Water Supply</td>
<td>• Chemical Resistance</td>
</tr>
<tr>
<td>• Advanced Drainage</td>
<td>• PE (including HDPE)</td>
<td>• Agriculture</td>
<td>• Corrosion Resistance</td>
</tr>
<tr>
<td>• Systems</td>
<td>• PP</td>
<td>• Sewage</td>
<td>• Lightweight</td>
</tr>
<tr>
<td>• North American Pipe</td>
<td>• Fiber Reinforced</td>
<td>• Cable Protection</td>
<td>• Low cost (except FRP)</td>
</tr>
<tr>
<td>• Corp</td>
<td>• Pipes</td>
<td>• Oil &amp; Gas</td>
<td></td>
</tr>
<tr>
<td>• JM Eagle Co.</td>
<td></td>
<td>• Others</td>
<td></td>
</tr>
<tr>
<td>• Future Pipe</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Key Applications of Plastic Pipe

- Portable Water
- Waste Water
- Agriculture
- Chemical
- Oil and Gas
- Electrical and Telecommunication
Plastic Pipe Market Presence by Resin Type

<table>
<thead>
<tr>
<th>Plastic Pipe Application Segments</th>
<th>Plastic Pipe Market Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portable Water</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td>Waste Water</td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td>Electrical and Telecommunication</td>
<td><img src="image3" alt="Diagram" /></td>
</tr>
<tr>
<td>Agriculture</td>
<td><img src="image4" alt="Diagram" /></td>
</tr>
<tr>
<td>Chemical</td>
<td><img src="image5" alt="Diagram" /></td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td><img src="image6" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **Degree of Usage**
  - Very High
  - Very Low

- Portable water and waste water applications together account for more than 60% of the global plastic pipe market.
- PVC pipes and PE pipes together account for more than 80% of the global plastic pipe market.
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Plastic Pipe Constitutes ~8% of the Middle East Pipe Market

Total Pipe Market in Middle East in 2019:
~14.2 Million Tons

- Plastic pipe market was estimated at 14.2 million metric tons in 2019 in which plastic pipes has about 8% share
- Plastic pipe market is expected to experience highest growth among all type of pipes in the next five years
  - HDPE and FRP pipes are the fastest growing plastic pipe type in middle east region mainly driven by water supply, oil & gas and industrial markets
- Construction, sewage, oil & gas and industrial are the major application segments for plastic pipes in middle east region

Materials Dominance in the Middle East Pipe Market

<table>
<thead>
<tr>
<th>Materials Type</th>
<th>Market Share</th>
<th>Future Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ductile Iron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key Insights

- Total Middle east pipe market was estimated at 14.2 million metric tons in 2019 in which plastic pipes has about 8% share
- Plastic pipe market is expected to experience highest growth among all type of pipes in the next five years
  - HDPE and FRP pipes are the fastest growing plastic pipe type in middle east region mainly driven by water supply, oil & gas and industrial markets
- Construction, sewage, oil & gas and industrial are the major application segments for plastic pipes in middle east region

Degree of Usage

- Very High
- Very Low

Future Growth

- High
- Moderate
- Low
PE and PVC accounts for 90% of Total Plastic Pipe Market in Middle East in 2019

Key Insights

- PE and PVC are the major plastic pipe material type in the middle east market with 50% and 40% share respectively in 2019
  - More than 75% of the total PVC pipes goes into the construction industry
  - PE pipes are likely to experience the greatest growth among all types of the pipes in Middle east region
    - Low cost in terms of installations and production as compared to conventional iron and steel pipes
    - Highly effective for water supply and gas supply. Middle east region has higher water loss due to leakage (about 30% to 50%)
    - Ability to withstand at harsh environment (UV exposure 700kJ/square cm/year, water temperature in the pipe upto 50 C, outside temperature ranges from -20 to +55 C and water with high chlorine content)
Wastewater is the Largest Application of Plastic Pipe, Whereas PVC Pipes is Largest in Material Type

Plastic Pipe Market by Application

- **Wastewater**
- **Portable Water**
- **Electrical and Telecommunication**
- **Agriculture**
- **Chemical**
- **Oil and Gas**

**Growth Rate**

Plastic Pipe Market by Material

- **PVC Pipes**
- **PE Pipes**
- **PP Pipes**
- **Others** (ABS pipes, PB pipes, and PVDF pipes)

**Growth Rate**

CAGR: **(2019-25)**

- **Negative**: <0%
- **Flat**: 0%-3%
- **Growing**: >3%

Source: Lucintel
Middle East Plastic Pipe Market Trend & Forecast (2014-2025)

Key Insights

- Middle East plastic pipe market is likely to grow with a CAGR of 8% in the next five years to reach $4.2 billion in 2025.

- Continuous high investment in infrastructure projects and strong economic growth are the major growth engines for the plastic pipe market in Middle East region.

- High demand of large diameter pipes for applications, such as desalination plants and cooling lines for power plants.

Source: Lucintel
Key Drivers for Plastic Pipe Market in Middle East Region

- Building & Construction growth: Rapid infrastructure development in terms of residential & non-residential construction is driving the usage of plastic pipes.
- Water infrastructure: Increasing water scarcity in middle east region requires investment in desalination and recycling plants; driving the market for water infrastructure (& plastic pipes).
- Competitive with Steel Pipe: Increase in steel prices in recent years is making plastic pipe (with better properties) more competitive.
- Surge in oil & gas activities: Improvements in resin formulations have enabled plastic pipes to increase its share in oil & gas industry in recent years.
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# Product Portfolio of Some of Major Players in Plastic Pipe in Middle East

<table>
<thead>
<tr>
<th>Company</th>
<th>PVC</th>
<th>HDPE</th>
<th>LDPE</th>
<th>PP</th>
<th>FRP</th>
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<td>Almunif Pipe (MMP Group)</td>
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<td></td>
<td></td>
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<td>Al-Koblan</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>AL-Wassael</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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<tr>
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<td>✓</td>
</tr>
<tr>
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<tr>
<td>Future Pipe</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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</tr>
<tr>
<td>Jubail sanitary pipe factory</td>
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<tr>
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<td></td>
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<tr>
<td>Saudi Industries for Pipe Co, Ltd</td>
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</table>
## Market Presence of Some of Major Players in Plastic Pipe in Middle East

<table>
<thead>
<tr>
<th>Company</th>
<th>Portable Water</th>
<th>Waste Water</th>
<th>Electrical &amp; Telecom</th>
<th>Agriculture</th>
<th>Oil &amp; Gas</th>
<th>Chemical</th>
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<tbody>
<tr>
<td>Almunif Pipe (MMP Group)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Alтайар пластик &amp; резина fab. co. Ltd.</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Al-Koblan</td>
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<tr>
<td>Al-Watania Plastics</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
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<td>✓</td>
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<td>✓</td>
<td>✓</td>
</tr>
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<td>Jubail sanitary pipe factory</td>
<td>✓</td>
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<td>✓</td>
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<td>✓</td>
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</tbody>
</table>
## Property Comparison of Different Types of Pipes

<table>
<thead>
<tr>
<th>Property</th>
<th>Stainless Steel</th>
<th>Ductile Iron</th>
<th>PVC</th>
<th>HDPE</th>
<th>Concrete</th>
<th>FRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosion Resistance</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Weight</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Strength to weight ratio</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Product Life</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cost</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Maintenance Cost</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

*Indicators: ○ Very Low, ● Very High*
### Major Pipes: Advantages, Disadvantages and Applications

<table>
<thead>
<tr>
<th>Type of Pipe</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductile Iron Pipe</td>
<td>Durable and suitable for high pressure applications</td>
<td>Corrosive, Heavy</td>
<td>High strength and high pressure applications that require a robust pipe</td>
</tr>
<tr>
<td>Stainless Steel Pipe</td>
<td>Durable and ideal for high pressure applications</td>
<td>Corrosive, Expensive</td>
<td>Water and waste water transmission, oil &amp; gas Transmission</td>
</tr>
<tr>
<td>PVC Pipe</td>
<td>Light weight and easy to handle, Non-corrosive</td>
<td>Small life, Low strength</td>
<td>Buried water, buried sanitary sewer, agriculture, Cables</td>
</tr>
<tr>
<td>HDPE Pipe</td>
<td>Non-corrosive, lighter than steel, relatively lower cost</td>
<td>Limited pressure rating</td>
<td>All underground utilities where abrasion, corrosion and chemical resistance is Critical</td>
</tr>
<tr>
<td>Concrete Pipe</td>
<td>High strength and pressure rating, Long life</td>
<td>Very heavy</td>
<td>Jacking and microtunneling Applications</td>
</tr>
<tr>
<td>FRP Pipe</td>
<td>Non-corrosive, Lightweight, Long life, Strength to weight ratio</td>
<td>Expensive initially</td>
<td>For lightweight and anticorrosive applications such as oil &amp; gas, chemical, industrial etc.</td>
</tr>
</tbody>
</table>
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Thermoplastic Pipe Manufacturing Steps

1. Extrusion
   - Plastic material pellets/granules are melted and forced in a die which shapes the polymer into a pipe.

2. Sizing
   - Sizing process holds the pipe in required dimensions while cooling and shaping the pipe.

3. Extrusion
   - Resulted pipe is cut into specific lengths and bundled for storage & shipping.

Finished Pipe
### Plastic Pipe Plant: Equipment Cost, Raw Materials and Other Details

<table>
<thead>
<tr>
<th>Plant: Investment and Other Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Capacity (in Tons)</td>
<td>1,500</td>
</tr>
<tr>
<td>Plant Area (Square Meter)</td>
<td>2,000</td>
</tr>
<tr>
<td>Building Area (Square Meter)</td>
<td>1,000</td>
</tr>
<tr>
<td>Manpower (No. of Employees)</td>
<td>25</td>
</tr>
<tr>
<td>Shifts (8 Hours Per Day)</td>
<td>3 Shifts</td>
</tr>
<tr>
<td>Power Requirement (HP)</td>
<td>110</td>
</tr>
<tr>
<td>Water Requirement (KL/ Year)</td>
<td>1,000</td>
</tr>
<tr>
<td>Investment in Machines ($M)</td>
<td>$0.1 - $0.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List of Raw Materials</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resins (PVC, PE, etc)</td>
<td>Fillers</td>
</tr>
<tr>
<td>Stabilizers</td>
<td>Stabilizers</td>
</tr>
<tr>
<td>Lubricants</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List of Equipment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High Speed Mixers</td>
<td>Haul Off</td>
</tr>
<tr>
<td>Twin Screw Extruder</td>
<td>Cutting Machine</td>
</tr>
<tr>
<td>Vacuum Spray Bath</td>
<td>Stacker</td>
</tr>
</tbody>
</table>
FRP Pipe: Filament Winding Process Overview

**Filament Winding Process Diagram**

- **Materials:** Glass roving, epoxy, polyester, vinyl ester
- **Equipment:** Filament winding
- **Major Applications:** Pipes, tanks, pressure vessels, industrial roller, utility poles

**Key Equipment**
- Filament Winding

**Key Industries**
- Pipes & Tanks
- Industrial
- Construction
Filament Winding: Types

**Helical or Discontinuous Process**

- Mandrel Diameter Capacity: 25–1,600 millimeter
- Pipe Length: upto 12 meters
- Resin System: Epoxy Resin
- End Applications: High temperature applications oil and gas, chemical, etc.
- Pressure: upto 240 bar
- Cycle Time: Comparatively High
- Machine Cost: $100,000-$500,000

**Continuous Process**

- Mandrel Diameter Capacity: 300 – 4,000 millimeter
- Pipe Length: upto 20 meters
- Resin System: Polyester, Vinyl Ester
- End Applications: Low temperature applications Sewage, Cooling Water, Industrial Waste Water, etc.
- Pressure: upto 25 bar
- Cycle Time: Low
- Machine Cost: $3 – $5 Million
## Investment Analysis

<table>
<thead>
<tr>
<th>Pipes by Resin Type</th>
<th>Key Manufacturing Process</th>
<th>Equipment Cost ($M)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC Pipe</td>
<td>Extrusion</td>
<td>$0.2 to $5</td>
<td>Depending on the plant capacity</td>
</tr>
<tr>
<td>PE Pipe</td>
<td>Extrusion</td>
<td>$0.2 to $5</td>
<td>Depending on the plant capacity</td>
</tr>
<tr>
<td>PP Pipe</td>
<td>Extrusion</td>
<td>$0.2 to $5</td>
<td>Depending on the plant capacity</td>
</tr>
<tr>
<td>FRP Pipe</td>
<td>Filament Winding</td>
<td>$0.5 to $5</td>
<td>Depending on the type of filament winding and plant production Capacity</td>
</tr>
</tbody>
</table>
Developing Capabilities in Multilayer Plastic Pipes and Anti-Microbial Plastic Pipes Provide Strategic Growth Paths

**Strategic Considerations in Plastic Pipe Market**

- Players of plastic pipe market can focus to increase their capabilities to fulfill multilayer plastic pipes requirements in gas distribution
- Increase in capabilities to match up with anti-microbial plastic pipes to improve hygiene
- Investments to increase competencies in advanced plastic pipes like eco-friendly PE and ABS pipes
- Research and development activities to develop low cost plastic pipes

**Alliances/In-Organics Expansions**

- Strategic collaborations / acquisitions to increase geographical presence in growing countries
- Develop alliance to penetrate in new applications
- Collaborative activities to develop advanced plastic pipe technologies

**Source:** Lucintel
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Lucintel - At a Glance

- Premier management consulting and market research firm. Founded in 1998.
- Deep global insights into major industries. Team of over 120 analysts/consultants across globe.
- Management comprised of PhDs, MBAs, and subject matter experts. Head quarter in Dallas, USA.

Conducted 500+ consulting projects across industries for 3M, Audi, Dupont, Carlyle, GE, etc.

**Consulting Services**

- Opportunity screening
- Market entry strategy
- Supply chain analysis
- Growth finance
- Strategic consulting
- Competitive assessment
- Due diligence
- M & A services

**Why Lucintel**

- **Trusted insights**: Reliable insights. Widely cited in Wall Street Journal, Financial Times, Forbes, etc.

- **Clients we serve**: Over 1000 clients from 70 countries – Fortune 500 companies

- **Strategic advice**: Over 20 years of proven global strategic management consulting experience

**Industries Served**

- Manufacturing
- Healthcare
- Technology
- Energy
- Consumer Goods
- Chemicals
- Transportation
- IT
- Aerospace

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Thank You