Case Study #186

Pexgol Solution for Iron Ore Slurry

Improved Slurry Transportation significantly reduced scaling.

Jindal Steel - DRI Plant

India | 2025

Working Conditions

Temperature: 70°–80°C / 158°-176°F
Flow rate: 65 m³/h, 150 m³/h, 300 m³/h
Pressure: 6 bar
Fluid components: 50% iron ore + 50% water. Solids composition includes Fe, C, SiO_2, Al_2O_3, CaO, MgO (balance water)

Pexgol Pipe

Pexgol 140 mm, 180 mm, 250 mm

Application

Iron Ore Slurry Transportation

Length

900 m + 250 m + 200 m / 2952 ft + 820 ft + 656 ft

The Challenge

Jindal Steel, one of India's foremost integrated steel producers, required a reliable solution for the transportation of 40–50% iron ore slurry under demanding operating conditions.
The existing pipeline system, manufactured from HDPE and carbon steel, was exposed to high solids concentration, operating temperatures of 70–80 °C, and continuous service. As a result, the system suffered from:

- Severe internal scaling, progressively reducing the effective internal diameter.
- Frequent clogging and line blockages, leading to unstable flow.
- Repeated downtime and production losses.
- Flow fluctuations, limiting flow output and operational efficiency.

The client required a piping system capable of eliminating scaling, ensuring stable and continuous flow, and supporting higher production volumes with reduced maintenance.

The Solution

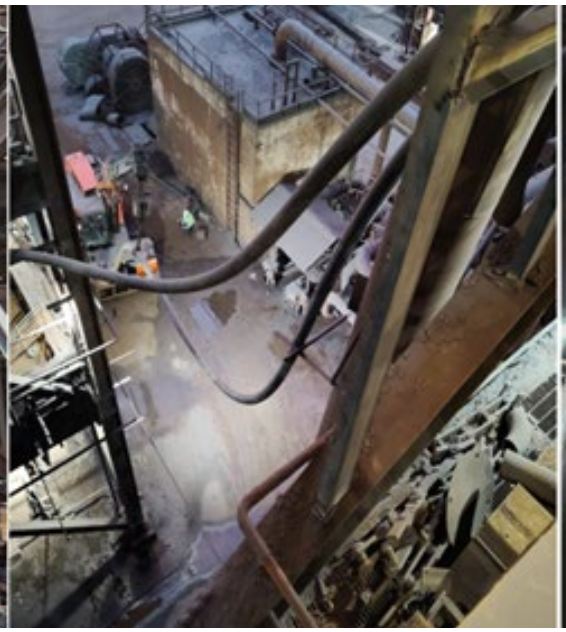
For Jindal Steel DRI (Direct Reduced Iron Plant), Pexgol piping was selected to replace the existing system due to its smooth internal surface, high resistance to scaling, and excellent performance in high-temperature slurry applications.
Key elements of the solution included:

- Less scaling performance, completely eliminating internal buildup and flow obstructions.
- Continuous, stable flow without fluctuations, significantly improving operational reliability. Flow rate increased by more than two times compared to the previous system, directly enhancing production output volume and contributing to the overall success of the project.
- Natural bending radius of the Pexgol pipeline, allowing the line to follow the required route without excessive fittings. This flexibility avoided the use of a high number of 45° and 90° elbows, reducing pressure losses and potential wear points.
- Each circuit executed with more than 70 meters as a single-length pipeline installation, minimizing the number of joints and improving system integrity.
- Mechanical Double Connectors used to ensure safe, reliable, and efficient connections.
- Lightweight pipes and longer sections, simplifying handling and accelerating installation.

The long pipe sections, together with the Pexgol material characteristics, allowed a fast installation with minimal pump shut down.

Pexgol

Previously used pipes



Mild Steel Pipe: fluctuating and reduced flow due to obstruction

Pexgol Pipe: Full diameter and higher flow rate

The Advantages of Pexgol Pipe Systems

High resistance to wear
Pexgol is the preferred solution for abrasive materials transportation. Typically resists three times more than HDPE and twice more than steel.

Excellent chemical and corrosion resistance
Pexgol pipes can resist a wide range of chemical agents, slurries, toxic and radioactive materials.

High temperature resistance
Working temperatures can range from -50°C / -58°F up to 110°C/230°F.

Superb internal and external corrosion resistance
Our pipes are proven to withstand decades of exposure to corrosive environments, with nonstop performance in some of the world's harshest environments.

Long pipe sections
Pexgol pipes can be supplied in long coil lengths, reducing number of joints, installation time and risks.

Creep and impact resistance
Pexgol pipes can withstand high amounts of axial and radial stresses and are highly resistant to impact, fracture and fatigue. Furthermore, Pexgol pipes are completely resistant to cracks even when dragged over sharp rocky terrain and coagulated salt crystals.

For more information please visit:
pexgol.com