

Pexgol Optimizes Tailings Management at Sherritt's Moa Nickel Mine



Mining Effluent Transportation in Cuba.



Sherritt Cuba | 2020

• Working Conditions

Temperature: 90°C / 194°F
Flow Rate: 1,400-1,800 m³/h
Pressure: 4 bar
Fluid Components: Sand, mineral, sulfuric acid. 30-33% solids, pH 1.1 - 1.3, containing various metallic sulfates in solution along with solid-phase oxides, primarily iron oxide (d80 - 84 microns).

• Pexgol Pipe

Pexgol 630 mm (24") class 12 & 10

• Application

Mining Effluent Transportation

• Length

6300 m / 20669.29 ft

The Challenge

Sherritt, a global leader in nickel and cobalt mining and refining, faced the challenge of implementing an efficient and long-lasting system for transporting mining effluents at its Moa Nickel mine in Cuba. The project required a solution capable of transporting 1,400-1,800 m³/h of tailings at temperatures of 90°C and with a highly acidic pH (1.1 - 1.3), along with abrasive solids such as metal oxides and sulfates in solution.

The pipeline needed to cover a distance of 6.3 km from the processing plant to the tailings deposit, buried 2 meters underground in highly corrosive soil. Alternatives considered, such as stainless steel and fiberglass pipes, were deemed unfeasible due to their high costs. This prompted the search for a solution that balanced durability, chemical resistance, and ease of installation.

The Solution

Sherritt chose 630 mm (24") Pexgol pipes in Class 12 and Class 10 due to their excellent resistance to chemicals, abrasion, and both external and internal corrosion. Key features that made Pexgol the ideal solution include:

- **Resistance to Extreme Conditions:** The ability to handle highly acidic fluids, high temperatures, and abrasive solids without compromising the integrity of the pipes.
- **Ease of Handling and Installation:** The lightweight material facilitated transportation and installation in complex terrain.
- **Long-Term Durability:** Protection against external corrosion in aggressive soil conditions.

The installation was carried out using pipes supplied in 11.8-meter sections, connected through reinforced Series 1 electrofusion couplings. More than 500 welds were performed, all of which have shown optimal performance to date. To optimize time, three work teams were formed, each consisting of four trained operators, achieving a daily installation rate of 120 to 210 meters.



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.



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.



Excellent chemical and corrosion resistance

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



Long pipe sections

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



High temperature resistance

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



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

