

Minera San Julián Adopts Pexgol to Improve Water Management



Pexgol Transforms Tailings Transportation at Minera San Julián.



Fresnillo plc
Mexico | 2024

• Working Conditions

Temperature: 25°C / 77°F
Flow: 131 m³/h
Pressure: 200 psi
Fluid components: Sand, water, cyanide
Percentage of solids: 64%
d.50 / 25 µm
d.85 / 75 µm
Specific gravity of solids: 2.75
Density of solids: 1.687 g/cm³

• Pexgol Pipe

Pexgol 8" & 10", SDR 11 & SDR 9

• Application

Tailings

• Length

6250 m / 20505.25 ft

The Challenge

San Julián, a mining unit of Fresnillo plc, faced a significant challenge in its tailings (jal) transportation operation in Mexico. The existing line, composed of carbon steel SCH 80 pipes, suffered from severe corrosion and wear problems, and the use of positive displacement pumps generated harmful vibrations. These issues not only compromised operational efficiency but also increased maintenance costs and raised medium-term safety concerns. With the goal of reducing the amount of water used, it was decided to seek a more suitable and durable solution. The water reduction is due to the use of positive displacement pumps that can pump tailings with a higher percentage of solids and consequently less water. To transport this abrasive tailings, Pexgol pipes were chosen.

The Solution

To address these challenges, Minera San Julián decided to implement 8" and 10" Pexgol pipes in SDR 11 and SDR 9 classes. These pipes were selected for their high resistance to chemicals and corrosion, flexibility, long lifespan, and ease of installation. The Pexgol pipes were supplied in 270-meter lengths for the 8" pipes and 150-meter lengths for the 10" pipes. The installation was carried out with the help of an uncoiler, allowing for quick and efficient deployment at the bottom of the tailings pond and along the path to the pond, over emergency gutters.

Connections between the pipes, as well as to the valves and steel pipes, were made with GP flanged couplings, without the need for complex tools.

The implementation of Pexgol pipes eliminated the corrosion and wear problems that affected the steel pipes. Additionally, the supply of pipes in rolls significantly reduced the number of joints required, thus increasing the project's safety and efficiency. The material's flexibility and quick installation minimized interruptions to the mine's operations, improving overall productivity.



Watch
Installation
Video



Granulometric Distribution San Julián Tailings Veins

Product Mesh	Size (microns)		Retained Weight	% Retained Weight	% Passing Accumulated
	Limit	Efectivo			
25	850	850		0	100
50	425	425		0	100
70	212	212	5.31	1.06	98.94
100	150	150	17.46	3.49	95.45
140	105	105	46.55	9.31	86.14
200	75	75	67.14	13.43	72.71
270	53	53	39.47	7.89	64.81
325	44	44	40.40	8.08	56.73
400	38	38	26.73	5.35	51.39
Ciclon 1	42.7	41	2.85	0.57	50.82
Ciclon 2	30	29	21.52	4.3	46.51
Ciclon 3	21.4	20	41.80	8.36	38.16
Ciclon 4	15.3	15	31.71	6.34	31.81
Ciclon 5	12.3	12	23.21	4.64	27.17
Ciclon 5	-12	-12	135.86	27.17	0
Total			500.00	100.00	

Operative Conditions	Size	Factor
Temperature °C	28	0.91
Specific Gravity	2.42	1.09
Rotameter (mm)	180	1.02
Elutriation time	20	0.96
General Factor		0.96
K80 Size (microns)		91.3

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

