

Shotcrete Method Utilised to Apply Belzona Solution onto Slurry Pipes

Offering Abrasion Resistance

ID: 10310

Industry:	Mining & Quarrying	Customer Location:	Uzbekistan
Application:	SHM-Solids Handling Machinery	Application Date:	April 2026
Substrate:	Other		
Products:	Belzona 1111 (Super Metal),Belzona 1212,Belzona 1813,Belzona 1814,Belzona 2111 (D & A Hi-Build Elastomer),Belzona 2941 (Elastomer SP-Conditioner),Belzona 9111 (Cleaner Degreaser)		

Problem

The client processes ore through crushing, grinding, flotation, and filtration, then sends the depleted pulp to tailings storage. The client pointed out an existing problem with rapid wear of tees on slurry pipelines. They required a solution that could provide a minimum of 5,000 hours of service life.



Shotcrete was applied centrifugally to the internal surface of slurry pipeline



Protection of the side portion the slurry pipe



Application of abrasion-resistant system on the shotcrete layer



Application of the system on a tee

Application Situation

A multilayered lining system was developed using shotcrete as the primary lining, supplemented with porcelain tiles and Belzona materials to enhance durability and protection. The pipeline was divided into zones based on the severity of operating conditions and deterioration, allowing the appropriate Belzona materials to be specified for each area. Prior to implementation, a comprehensive testing program was conducted to verify the performance and suitability of the proposed lining system under the anticipated service conditions.

Application Method

1. Shotcrete was applied centrifugally to the internal surface of the pipeline, forming the primary lining layer and providing the

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foundation for the composite wear protection system.

3. Surface preparation was carried out by notching the substrates using a hand grinder, employing a grinding disc on the metal pipe surface and a diamond disc on the ceramic tile surface, to create an appropriate profile for adhesion. The surfaces were then cleaned by blowing with compressed air from a diesel compressor.

3. The prepared surfaces were degreased with Belzona 9111 (Cleaner Degreaser) to remove contaminants and ensure optimum adhesion of subsequent materials.

4. In areas designated for Belzona 2111 (D & A Hi-Build Elastomer), Belzona 2941 (Elastomer SP-Conditioner) was applied as a primer to enhance adhesion to the substrate.

5. Porcelain tiles were bonded to the metal pipeline using Belzona 1111 (Super Metal) on the bottom and side sections.

6. On the top sections of the pipeline, Belzona 1212 was used to bond the porcelain tiles due to its fast-curing characteristics and strong adhesive performance.

7. To protect the adhesive layer and exposed high-wear areas from abrasion, Belzona 1813, Belzona 1814, and Belzona 2111 (D & A Hi-Build Elastomer) were applied as abrasion-resistant protective layers, completing the composite lining system and significantly improving service life in critical wear zones such as tees, bends, crosses, and cones.

Belzona Facts

A series of tests was conducted in order to develop a new lining technology for the tees on the slurry pipelines.

Belzona was applied to support the performance of the shotcrete repair method, enabling more flexible and effective long-term results. The solution exposed only about 20% wear after 5,000 hours, indicating a potential service life exceeding 25,000 hours, far outperforming conventional methods. This leads to reduced downtime, lower maintenance costs, and improved efficiency, making it highly attractive for operations handling abrasive materials.

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