

Project Info



06 / 10 / 15



CC13™ Bulk Rolls



7,000m²



Transverse layers



Vazante, Minas Gerais,
Brazil



Cabral Engenharia



CC was used to line
drainage channels
and a drainage lagoon
constructed to decant
alkaline mine water



Completed lagoon

In October 2015, Concrete Canvas® GCCM* (CC) was used to line a newly constructed drainage lagoon at Votorantim Metais Zinco mine in Vazante, Minas Gerais, Brazil.

Alkaline mine water would be transported to the lagoon via a series of drainage channels, also lined with CC, to be decanted and treated. Installation was carried out during the rainy season which would have led to programme disruption had shotcrete been used. CC, however, can be installed during inclement weather allowing for a faster and easier installation. CC also negated any of the health and safety risks associated with shotcrete such as rebound. The remote location of the mine also meant using CC was advantageous as transport costs would be drastically reduced. The material was supplied by SPI Engenharia e Representações.

Vegetation was removed and the lagoon slopes graded and compacted. Bulk rolls of CC13™ were mounted onto a spreader beam and unrolled down the lagoon slope faces, before being cut to specific profile length. Subsequent layers overlapped the previous by 100mm and pegs were inserted through the overlaps at the crest. Everbuild Clearfix adhesive sealant was used to join the overlaps, and the joints were compressed to ensure an optimal bond. Hydration was achieved using a water truck and hose with spray nozzle attached.

7000m² of CC13™ were installed in 2 months, compared to the 4+ months it would have taken with shotcrete. CC was able to easily accommodate pipe protrusions and be installed during rain and high temperatures of up to 42°C.

*Geosynthetic Cementitious Composite Mat





Mine site



Compressing the joints



CC pegged at the crest



Pipe penetration

“We were very happy with the lagoon lining, this installation will become a reference within the Votorantim Group”

Sebastiao Alves da Silva
Site Operations Manager,
Votorantim Metais

“We are very happy that there were zero personal accidents in the 63 days on lining and 75 days of all works”

Marcelo Almeida Santos
Health and Safety,
Votorantim Metais