



# SIKA AT WORK

## PALLANCATA MINE, PERU

DEVELOPING ONE OF THE WORLD'S RICHEST SILVER MINES

BUILDING TRUST



# DEVELOPING ONE OF THE WORLD'S RICHEST SILVER MINES

## PROJECT DESCRIPTION

The Pallancata mine is one of the richest silver deposits on the globe, operated by Hochschild Mining, a mining company with a long history in Latin America. The Pallancata operation is located in the department of Ayacucho in southern Peru, high up in the Andes at around 4'600 m.a.s.l.

The mine has grown steadily over the past seven years, ramping ore throughput rates up from 200 tons per day to around 3'000 tons in 2010. Since reaching design capacity, the mine has proven to be a steady silver producer, treating high grade silver ore with a silver grade of around 300 grams per ton. The Pallancata ore body is an epithermal silver deposit that was formed by hydrothermal fluids that were channeled in distinct veins which are mined today with highly selective methods in order to keep ore dilution by waste rock to a minimum. At the same time, a relatively large ore output needs to be provided to fully utilize the mill capacity. Such long hole and cut and fill mining methods usually implement the use of cemented backfill which is also the case for the Pallancata operation. The Pallancata vein itself is more than 2'000 meters long, some 40 meters wide and reaches a vertical depth of several hundred meters. Development headings along the mineralized veins as well as for the support infrastructure are executed using fiber reinforced shotcrete, produced in the ready mix plant at the mine site.

## EFFICIENT AND FLEXIBLE UNDERGROUND DRIFTING

Developing high grade vein deposits require a lot of mining skills from the miners involved. While following the mineralized veins, development needs to be highly flexible and demands special requirements on the support material and equipment used. Sika profits from many years of experiences with similar projects and understands the customer needs in terms of the construction chemicals in use for the underground development at Palancatta as well as for the paste backfill admixtures used for the project.

## PROJECT REQUIREMENTS

Sprayed concrete must have

- Rapid early strength development
- High 28 days strength
- A maximum dosage of accelerator of 5%
- A product stability of minimum six months
- High energy absorption by the use of structural fibers

Paste backfill

- Good cost performance of the backfilled paste in terms of the cured strength of the fill and the cement consumption



## SIKA SOLUTION

Sikas Sigunit® and plasticiser technology is among the key elements for the shotcrete and concrete works at Pallancata and a special adapted paste backfill admixture is supplied in order to improve the cost performance of the paste backfill mix. Furthermore the admixture reduces the risk of paste line blockages and reduces pumping pressures. Cement consumption of the paste fill operation can be reduced by the addition of admixtures which results in a improved overall mix design. Sika is providing continuous and wide reaching on site support when it comes to mix design improvements for the concrete, shotcrete and paste mix as well as the development of new technologies and implementation of solutions within the mining process.

## SELECTION OF SIKA PRODUCTS

- Sikament® 306 Superplasticizer (HRWR)
- Plastiment® Mine PE Paste backfill admixture
- Sigunit®-L22 PE Shotcrete accelerator
- SikaFiber® Structural fibers

## PROJECT PARTICIPANTS

Owner: Hochschild Mining plc  
Sika Organization: Sika Peru



- 1 Front: The Pallancata paste plant
- 2 View towards the Pallancata Mine and concentrator
- 3 Checking on the installed Sikament paste fill admixture tanks
- 4 Dosing of paste backfill admixture into the continuous twin shaft mixer
- 5 Mined out stope back filled with paste
- 6 Leaving the Pallancata decline

# PALLANCATA MINE PERU



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