



# SIKA AT WORK

## EL TENIENTE NEW LEVEL DEVELOPMENT, CHILE

CONCRETE, WATERPROOFING, REFURBISHMENT, SEALING AND BONDING, FLOORING

BUILDING TRUST



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## PROJECT DESCRIPTION

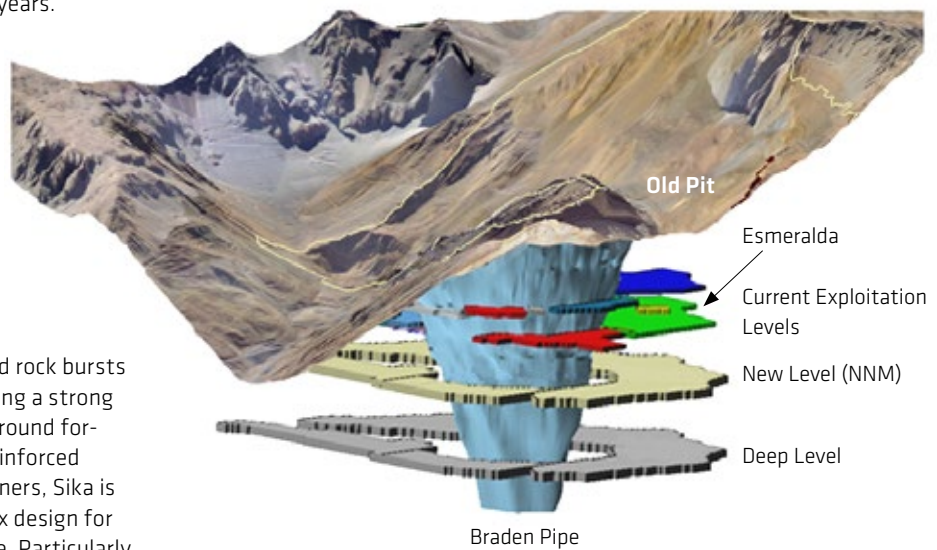
For more than 100 years, the copper ores of the El Teniente porphyry intrusion are mined in the central Andes region in Chile some 80km south of Santiago at an altitude of around 2600 m.a.s.l. Today, El Teniente is producing more than 137'000 tons of copper ore per day which makes the mine among the largest underground operations on the globe with one of the highest, annual copper output. Over the years, several extraction levels have been installed around the central vent of an ancient volcano system, called the "Braden Pipe".

The "Nuevo Nivel Mina" project is a large, more than US\$ 3 Billion investment project fully founded by the Chilean state owned copper miner Codelco that will allow to panel cave copper ore some 350 meters below the current undercut level and define ore extraction for the next 40 years.

Sika is strongly involved in the New Level Mine development (Nuevo Nivel Mina) that will change the whole underground haulage of El Teniente, replacing the current railbound system with trucks and conveyor systems to reach an ore throughput of 180'000 tons per day by 2026.

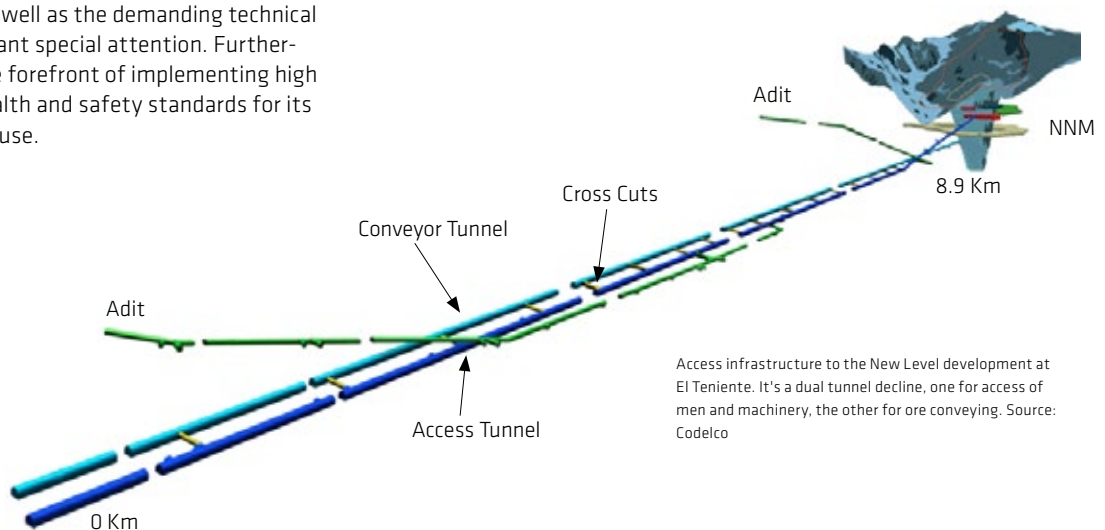
Since underground development started in 1904, well over 2'400 km of underground drifting has been performed at the mine site.

Illustration of the current and future extraction levels located around the El Teniente Braden Pipe. Source: Codelco



## PROJECT REQUIREMENTS

With increasing depths, seismicity and rock bursts become more and more relevant, having a strong influence on the design of the underground fortification such as the primary, fiber reinforced shotcrete liner. Together with its partners, Sika is constantly improving the concrete mix design for the specific applications at El Teniente. Particularly the logistical challenges for such a large operation, including the long travel times of the concrete to the point of use as well as the demanding technical requirements warrant special attention. Furthermore, Sika is at the forefront of implementing high environmental, health and safety standards for its products and their use.



Access infrastructure to the New Level development at El Teniente. It's a dual tunnel decline, one for access of men and machinery, the other for ore conveying. Source: Codelco

## SIKA SOLUTION

Sika is a long standing partner of Codelco and its main contractors involved in the underground development of El Teniente. Since many years, Sika is a main supplier of construction chemicals and equipment for the mine site, covering concrete and shotcrete admixtures, fibers, spraying equipment, speciality grouts and many other products providing onsite support and assistance.

Sika® Viscocrete® technology is used for the demanding concrete applications at El Teniente such as the loading pockets below the caved ore body, concrete linings of ore passes and various foundation works. The primary shotcrete liner is designed to reach an optimal cost performance, based on the cement and admixture dosage. High performing Sika Sigunit® alkali free shotcrete accelerators in combination with macro steel fibers are in use throughout the El Teniente underground development.

Reliable Sika-Putzmeister spraying equipment has been the go to solution for the sprayed concrete applications. Due to the large volumes of supplied material, Sika installed a supply hub in the village of Rancagua, right at the doorstep of El Teniente.

## SIKA PRODUCTS

### Concrete

- Sigunit® AF
- Sika® ViscoCrete® HS CL
- SikaTard®
- SikaPump®
- Sika Plastocrete®

### Waterproofing

- Sika® Waterbars
- SikaSwell® S-2

### Refurbishment

- Sikagrout®212
- Sikadur®42 HS
- SikaRep®
- Sika® Abraroc® CL
- SikaFluid®

### Sealing and Bonding

- Sikaflex® 1A

### Flooring

- Sikafloor® 263
- Sikafloor® PurCem®





# THE “NUEVO NIVEL MINA” PROJECT



Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



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