

**Project:**

Freeport copper and gold mine

**Location:**

Papua, Indonesia

**Project completed:**

2010

**Owner/s:**

PT Freeport Indonesia

**Applicator/Contractor:**

PT Redpath Indonesia

**Designer/Architect/Specifier:**

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**Market sector:**

UGC resin Injection for strata consolidation

**Products used & amounts:**

MasterRoc MP 364 Flex (40 tonnes) and MasterRoc MP 358SC (30 tonnes)

## Freeport copper and gold mine

### Strata consolidation for underground improvement



Our reference in Ground collapse at Freeport underground mine production area. Location at panel 5, Deep Ore Zone underground mine.

#### The background

The Freeport mine and Master Builders Solutions have had a cooperation history on grouting and repair work for over 20 years. Since October 2010, the Master Builders Solutions team has been providing a professional solution for ground stabilization and access to undeveloped areas of the mine. Located in Papua, Indonesia, the Freeport mine was opened in 1961 and is the world's lowest-cost copper mine and one of the world's largest gold mines. Deep Ore Zone (DOZ) underground mine had collapsed due to ground squeezed in 2009 which disrupted overall mine production.

#### The challenge

Ground pressure was so high and has squeezed the underground mine production area with high convergence value. This situation might disrupt whole underground mine production.

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# Freeport copper and gold mine

## Strata consolidation for underground improvement



[Our reference in Freeport Indonesia \(](#)

### Our solution

MasterRoc MP 358 SC is a quick reacting two component polyurethane injection resin specifically designed for rapid stabilization of strata. It is fast-curing and flexible, and expands its volume to a foam factor of up to 3. MasterRoc MP 358 SC is used where high structural strength is required.

MasterRoc MP 364 Flex is a highly reactive two component fire resistant polyurea silicate injection resin which is also designed for rapid stabilization of strata. It is fast-curing and non-foaming. The injection resin has further advantages: it does not shrink, and after a quick curing process it achieves a high bonding strength, remaining flexible at the same time. Furthermore, it does not absorb or react by expanding its volume in the presence of water, and is therefore also suitable for underwater applications.

The Freeport mine's delegates took part in the practical injection workshop which was held at an underground facility in Hagerbach, Switzerland from 22nd - 23rd February 2011. The workshop did not only limit itself to polyurethane and urea silicate injection, but provided beneficial information on the entire Master Builders Solutions injection portfolio

### The customer's benefit

- By using Master Builders Solutions resin injection system, loose and fractured rock had been consolidated successfully due to high bonding properties of these resins. Besides, convergence value of ground pressure had been reduced significantly and long with that reduced potential of rock burst. Hence, safety working environment in underground had been much improved and indirectly improve productivity of Freeport copper and gold mine project.

### Projects facts at a glance

- Freeport is part of Freeport McMoran Copper and Gold (FCX), located at Grassberg mountain at Papua Island, Republic of Indonesia.
- The biggest copper mine in the world

### Master Builders Solutions by MBCC Group

The Master Builders Solutions brand expresses MBCC's expertise in providing customized chemical solutions for new construction, maintenance, repair and restoration of structures.

Master Builders Solutions is built on the experience gained from more than a century in the construction industry. At the core of the Master Builders Solutions brand is the combined know-how and experience of a global community of MBCC construction experts, who connect with you to solve all of your construction challenges.