

## Copper Concentrate Dewatering Plant – Concrete Protection

INDUSTRY	Mining/Mineral Processing
CLIENT	Newcrest Mining – Cadia Valley Operations
DISTRIBUTOR	ShieldCrete® Australia 1800 364 776 www.shieldcreteinternational.com.au
APPLICATOR	JK Williams
PROJECT	Chemical resistance and corrosion protection of suspended concrete slab.
LOCATION	Western NSW, Australia
SYSTEM	Single coat (to refusal) of ShieldSeal SCP-743/P3 catalysed colloidal silica as a curing compound and sealer.
DATE	2015



### Description

The engineers were concerned that the copper concentrate would attack the concrete and reduce the service life of the processing facility. Copper sulphate is harmful to the concrete asset and its steel reinforcement due to its galvanic reaction with the steel and the acidity of the solution. Being an elevated slab meant that any loss of strength due to corrosion is particularly critical.

After consulting ShieldCrete® Australia, it was decided to use a high durability bridge mix and use ShieldSeal SCP-743/P3 as the curing compound to seal the concrete against ingress of the solution. The bridge mix began presenting some shrinkage issues at the re-entrant corners and a few other places before we could even get on the slab to apply the curing compound. However, these were quickly and easily addressed during final finishing and once the ShieldSeal SCP-743/P3 was applied, there were no further signs of plastic shrinkage cracks.

A standard concrete mix that was a bit easier to work with, coupled with ShieldSeal is likely to have given the required durability, but in this case a belt-and-braces approach was applied given the relatively low-cost difference. By using ShieldSeal SCP-743/P3, the client saw improved workability and durability by just replacing the curing compound.

In this case the client wishes they had used it to replace the other specialty mixes (low temp, high abrasion, etc.) as it would have been a simpler, and better performing solution overall, but the suspended slab was the last major pour on the project.

