



Usage of Shotcrete Accelerators (ST-Alkali Free & Shot-Set 250)

Shotcrete Technologies has over 40 years of experience using Shotcrete Accelerators on jobs all over the world, in all types of job site and climactic conditions.

Alkali Free Accelerators (Aluminum Sulfate based) work well with Type I/II cement in general, but any variances in the cement chemistry and type of admixtures will result in a different reaction. This often results in an increase in dosage rate to a very high percent (above 6%) and negligible acceleration of the shotcrete.

There are a number of civil and mining projects where Alkali-Free Accelerator has been specified resulting in up to 8% by Weight of Cement usage. In this high dosage case the alum basically “cooks” the cement resulting in high rebound, and who knows the long term quality of the shotcrete. If the Alkali-Free does not work using 6% by weight-of-cement or less, then the Alum-Based Accelerator is not compatible with your cement -- regardless of much talk about the importance of temperature, density, etc. Obviously lots of things make a difference, but dosage rate and performance are key!

If you have any water/moisture in the tunnel, our **Shot-Set 250** is much more efficient. Kennecott Copper, Bingham Canyon, Utah (U.S) had a problem using an Alkali-Free. When they switched to Shot-Set 250, the dosage was reduced from 15% to 5%, and rebound was reduced from 30% to less than 10%. The quality of the shotcrete and progress in the tunnel improved dramatically.

Arch Material, a limestone mine in Ohio, (U.S) had the same experience as did the San Roque Hydro Project in the Philippines. In spite of testing and spraying the only thing that solved the problem was to replace the Alkali-Free with Shot-Set 250 Accelerator.

In Ecuador, we repaired a nine mile hydro tunnel with many areas of water intrusion. The total amount of Shot-set 250 accelerator was 3% by weight of cement.

More information can be found on our website: www.shotcretetechnologies.com

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