Equipment & Techniques Committee

BRITISH CAVING ASSOCIATION

Report on problems with product:

RAWL fixings R-KER Epoxy Acrylate Styrene Free Resin

The resin that was recommended for installing Bolt Products anchors was originally RALW R-KEA, however that was superseded and its replacement product is RAWL R-KER.

When we installed the Bolt Products anchors for testing, I noticed that occasionally during mid flow the resin components were not mixing thoroughly. On one occasion it was obvious by a subtle colour change during application and the hole was not used. But, another anchor that we had installed in the same batch, when extracted from the substrate still had uncured resin on the lower 50mm of the anchor.

I have spoken with both RAWL fixings technical department and Jim Titt from Bolt Products about the resin. It is evident that Bolt Products have also had recent problems with this resin not curing post mixing and application into the substrate.

When the resin is mixed by hand it is exothermic and cures within the recommended time scale with adjustments for temperature fluctuation. However, when mixed through the nozzle it is not as exothermic and in some instances does not cure thoroughly. Initially we could conclude that it is the nozzle, however the batch numbers for the resin that has the problem are the same, so it could be a manufacturing process issue.

The response from RAWL has been very positive. I have provided them with all the relevant information, visual observations and photographs of the test site.

RAWL have initiated the following in response:

1. Investigation into the manufacturing process.
2. Installed sample test beds using sample batch resin samples.
3. Initiate various tests to determine the variation on nozzle length and mixing thread lengths and curing times.

After an exchange of test information, I have had an email from Bolt Products stating that due to the low peak load force they no longer recommend this resin for securing the anchors.

Les Sykes