



## KEIM Mineral Paints – Technical Digest

### Cracking: What might it be trying to tell you?

There are many different paints available which market themselves as being able to cover cracks and to keep them covered even if they widen or new cracks appear. These film forming paints are made with a range of acrylics and petrochemicals and are referred to as 'elastomeric'.

But is simply painting over cracks and hiding them the best answer? The M4 was the news in 2012, amid panic that essential structural repairs which were currently keeping the motorway closed might not be done in time for the summer's Olympic Games.

And the reason that it has taken so long to identify that there were structural problems is primarily down to them being hidden by the 'protective' elastomeric coating which had been applied to protect the concrete! As part of a detailed inspection of some of the structural elements, the paint coatings had to be removed and it then became evident that the coatings had been hiding the cracks. The problems had even gone unnoticed at the bridges six-yearly principal inspection which was only carried out last year.

Cracks in a surface, structure or building could indicate a range of problems such as underlying defects or they could simply be very fine hairline cracking, such as that associated with lime renders. Whilst aesthetically, smaller hairline cracks and crazing will want to be covered by a paint decoration it is essential that larger, potentially dangerous structural cracks can be monitored so that necessary action can be taken, and hopefully avoid more costly measures in the future.

The way in which mineral silicate paints, such as Keim, work is that they penetrate into the mineral substrate to which they are applied, forming a chemical crystalline bond with the substrate. The nature of the crystalline structure formed is that of an insoluble silicate similar to silica sand on a microscopic scale.

Because of the crystalline nature of the coating, compared to a conventional film forming coating produced by an oil based paint system, there are finite gaps between adjacent crystals, these 'holes' are large enough to allow the free passage of vapour but small enough to prevent the passage of driven rain. This therefore means that the Keim coating becomes an integral part of the mineral substrate to which it is applied onto and maintains the substrate vapour permeability, whilst at the same time providing an effective barrier to the ingress of moisture.

Importantly this process means that the paint system takes on the same co-efficient of expansion as the mineral substrate to which it is applied, allowing existing or any possible future structural defects to be effectively monitored.

This paint itself comprises a liquid potassium silicate paint binder with natural earth oxide pigments and natural mineral fillers, such as feldspar. These fillers enable fine hairline cracks and crazing to be effectively filled by the paint application leaving a natural, matt textured, longlife durable Keim paint finish.



For further information regarding the features and benefits of Keim Mineral Paints please contact our sales office [sales@keimpaints.co.uk](mailto:sales@keimpaints.co.uk) or 01952 231250.

