

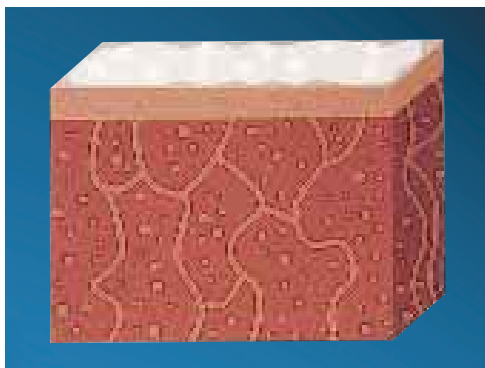
CONSTRUCTIVE  
SOLUTIONS

# EFFLORESCENCE ON CONCRETE – A TEMPORARY PROBLEM

USEFUL INFORMATION ABOUT COLOURED PAVERS

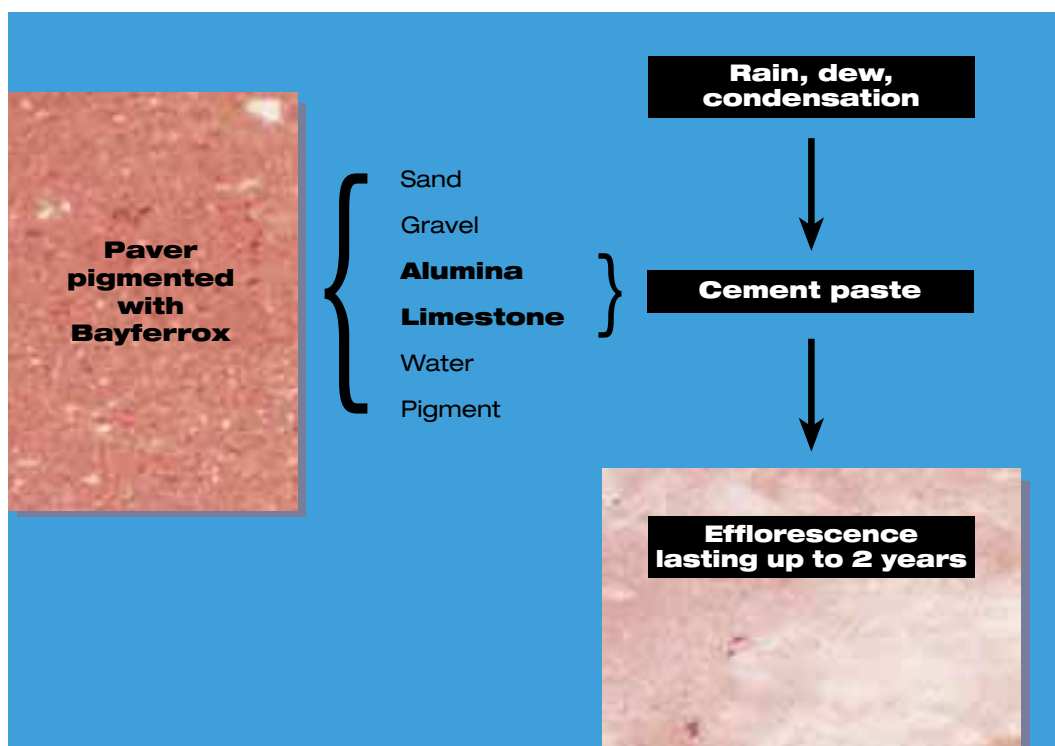
# Nature has its own way

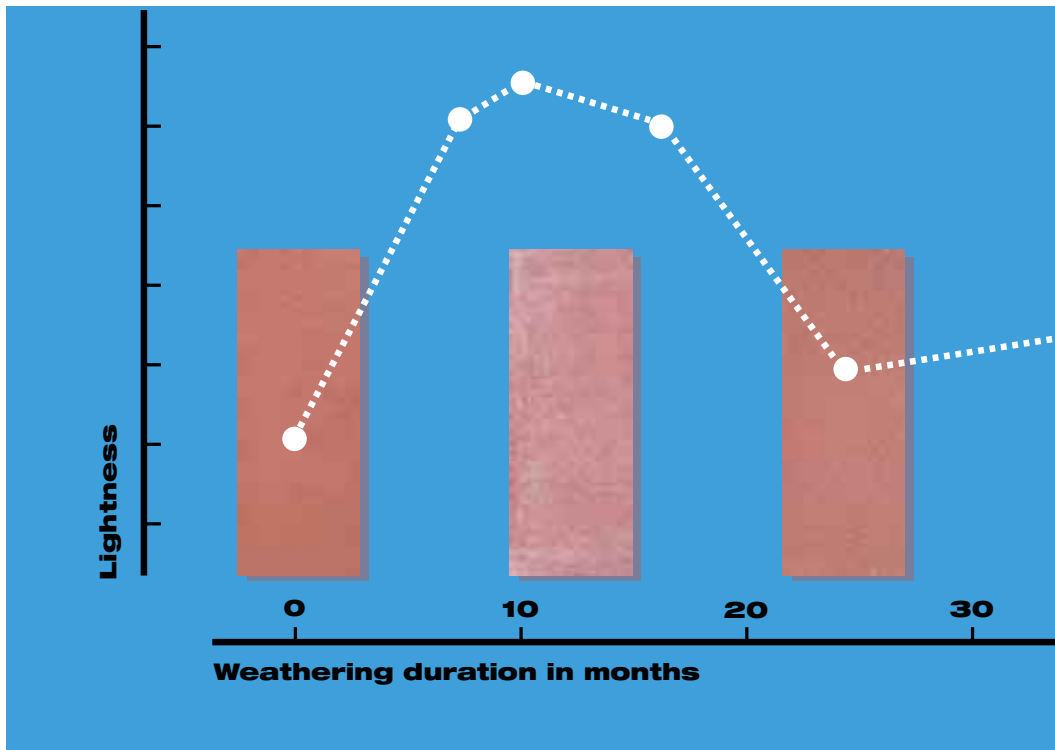
When white spots appear on the surface of coloured pavers – the unsightly phenomenon of efflorescence – our enjoyment of a paved area is often spoilt. Close behind follows the suspicion that a production error is to blame. However, this is usually not the case.



## Efflorescence is a natural phenomenon

Coloured pavers are made from concrete which is a wholly natural product containing sand, gravel, cement and water. Cement is produced by burning alumina and limestone. Like all natural products, these differ in their composition depending on their origin. Water in the form of rain, condensation and dew penetrates the pores of the concrete and partially dissolves the lime. The solution diffuses to the surface of the concrete and the water evaporates, leaving a white lime haze which is not readily soluble.





As the composition of the concrete and thus also the lime content varies and weather conditions change (rain, snow, wind, cold, heat ...), the degree of efflorescence also varies. The chemical process which the lime undergoes during weathering is not over when it appears as efflorescence on the surface of the concrete. It is slowly degraded and washed away by rain and other weathering influences. In other words, the efflorescence disappears naturally after a time.

Only the lime, which is not bound firmly in the concrete like the other components, can rise to the surface of the pavers. Once it has been removed, this effect cannot occur again. It is therefore unnecessary to replace the pavers or take other action against efflorescence.

## **Can efflorescence be tackled at the roots?**

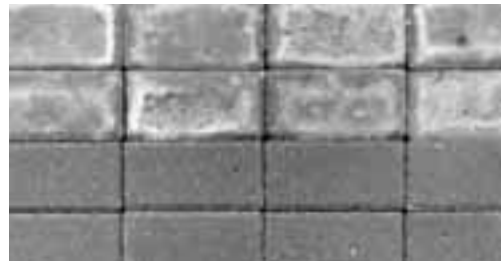
The best solution to the problem is care in the manufacture of coloured pavers.

Modern manufacturing techniques, careful quality control and close cooperation between our technical experts and manufacturers have proved to be the answer. Ongoing trials at weathering stations, investigation of various hardening processes and other tests have helped manufacturers to constantly improve the quality of their coloured pavers. However, despite all these precautions, one thing should be made clear. There is as yet no economically feasible process for reliably preventing efflorescence altogether.

As the use of packaging films promotes the formation of condensation, pavers should not be stored in film wrapping for too long.

### **Efflorescence doesn't last forever**

As a rule, efflorescence is washed away by rain within one or two years. If a user does not want to wait this long, various means are available for overcoming the problem. This has the advantage that the lime in the top layers of the concrete is also washed out. However, the surface of the pavers becomes rougher and the colour may change slightly.





## **Pigmented pavers show their true colours**

Bayferrox colour pigments bring pavers to life. They can be used to produce earth shades ranging from red, brown and black through to yellow.

Thanks to the lightfastness and weather stability of Bayferrox pigments, the pavers retain their strong colours after decades of intense exposure to weathering. Even if a small piece of a paver breaks off, this cannot be seen because of the through-colouring of the paver.

Bayferrox pigments cannot prevent efflorescence nor do they cause it. Efflorescence must be taken for what it is – a natural occurrence in a product made from natural raw materials.

Bayer AG  
Inorganics Business Group  
D-51368 Leverkusen

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Printed in Germany · E 6/8003093-057/1

