

**TECHNICAL SUPPORT ENERGIZED BY**

**LANXESS**  
Energizing Chemistry

Natural Bloom on concrete – a natural phenomenon

**X BAYFERROX®**  
Color for Life.



## COLORFULLY DESIGNED AREAS DO NOT HAVE TO DISAPPEAR FROM OUT OF SIGHT

**Bayferrox® color pigments add life to pavers. They can be used to color any kind of stone; from earthy red, brown and black, all the way through to yellow.**

The lightfastness and weather resistance of Bayferrox® pigments ensure that paving blocks keep their rich color over decades of intensive exposure to the elements. Even if a small chunk should break off, it goes unnoticed because of the integral coloring.

Occasionally we find areas with white patches on the surface, an effect known as, efflorescence'. However, Bayferrox® cannot prevent efflorescence, nor can it cause it. Efflorescence must be seen for what it is: a sign of life from a product made of natural raw materials.

When white marks (efflorescence) appear on the surface of colored paving blocks – the dreaded phenomenon of efflorescence – the consumer's initial happiness with his new pavers may well turn to annoyance. Some people may even suspect a production fault, but that is generally unfounded.



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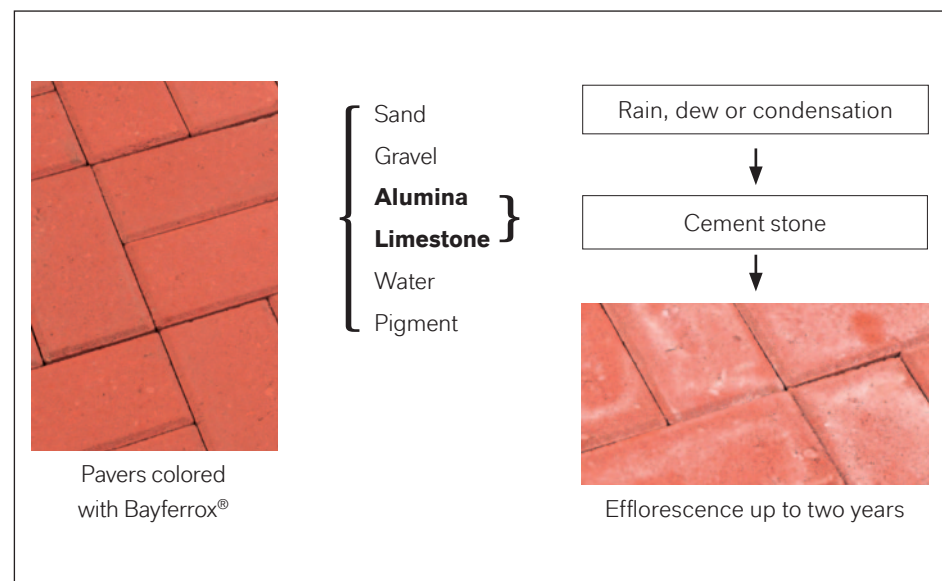
## EFFLORESCENCE IS A NATURAL PHENOMENON

Colored paving blocks are made of concrete, a truly natural product. Concrete is made from sand, gravel, cement and water. It is also important to know that cement is made from a mixture of calcined limestone and clay.

As with all naturally-derived materials, there is variation in the composition of these blocks. Water – in the form of rain, condensation or dew – penetrates through pores in the concrete of the finished blocks and partially dissolves the

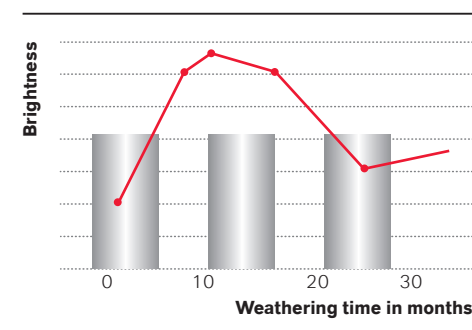
lime. The solution then migrates to the surface and the water evaporates, leaving a white lime haze which is not readily soluble.

Because the composition of the concrete – and thus also the lime content – is subject to certain fluctuations and because the influences of the weather also change (rain, snow, wind, cold, heat), the phenomenon of efflorescence appears with a markedly variable intensity.



The chemical process undergone by the lime when exposed to weathering is not quite complete when it emerges on the surface of the stone. As a result of the rain and other elements, the lime is slowly degraded and flushed away. In other words, efflorescence disappears on its own after a time.

Because only the lime that has not been firmly bound by the other raw materials in the concrete can emerge on the surface, efflorescence generally does not recur once it disappears. There is therefore little point in replacing the pavers or taking other measures to combat efflorescence.



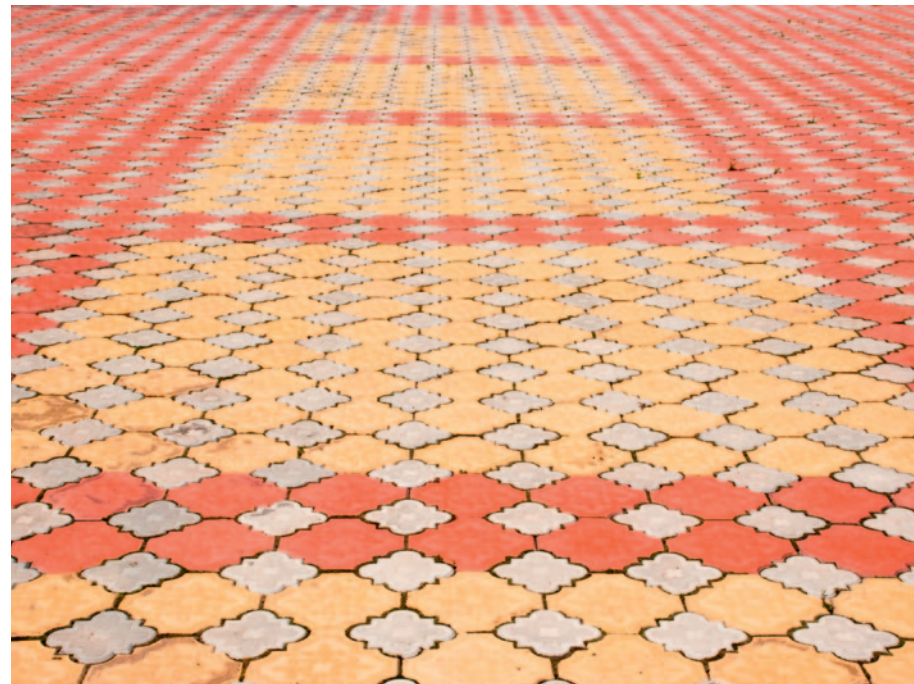


## CAN EFFLORESCENCE BE ROOTED OUT?

**Maximum care in the production of the colored pavers is the best recipe.**

Modern production methods, intensive quality control and close cooperation between our technicians and manufacturers have proved extremely successful. Constant trials in weathering units, tests with various curing processes and other experiments have helped manufacturers to significantly improve the quality of colored paving blocks in recent years. Whatever precautions are taken, it is important to accept that there is simply no economically viable process to reliably prevent efflorescence.

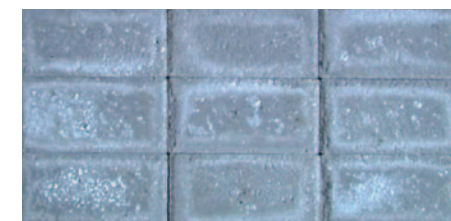
Since packaging film encourages the formation of condensation, the pavers should not be kept for long periods under plastic.



### ■ Efflorescence does not last forever

Efflorescence is generally washed off by the rain after about 1-2 years. Commercial products are available to anyone not wanting to wait that long. One advantage here is that the lime in the upper layers of the concrete is also washed out. However, the surface of the stone may become rougher and the shade may change slightly.

### ■ Weathering of efflorescence



unweathered



after 12 months exposure



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