



MANAGING
Efflorescence
ON CONCRETE PAVERS



The Best Practical Paving System

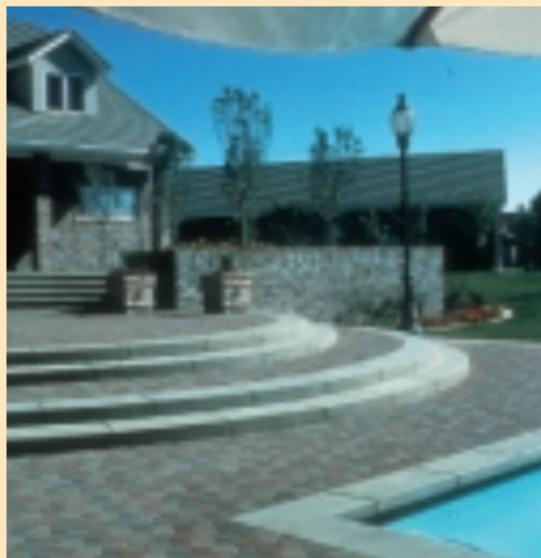
Congratulations! You have recently improved your property with strong, colorful, attractive interlocking concrete pavement. As a proud owner, you have invested in a long-lasting, durable, yet flexible pavement that adds value to your real estate. A truly beautiful yet practical pavement graces your property. If your project is just about to begin, you can anticipate enhancing your property with the best paving system for your money.



WHAT IS EFFLORESCENCE?

There is a chance that after a few weeks or months pass, a white haze may appear on the surface of the pavers. This is known as efflorescence. It may appear randomly or in certain areas, and will be more pronounced on dark colored pavers. The white haze may give the impression that the color of the pavers is fading.

When wet, the white disappears and the color of the pavers is enhanced. When they dry, the white haze reappears.



EFFLORESCENCE IS COMPLETELY NATURAL AND WILL DISAPPEAR WITH TIME

There's no reason to be concerned that your pavers are damaged or defective. The concrete pavers are experiencing a natural process. It is a condition in *all* cement-based products, as well as in many other paving

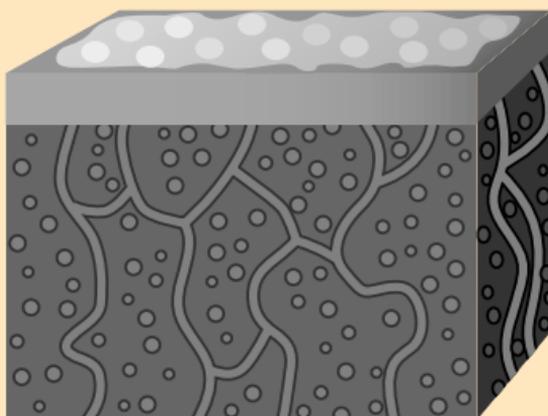


products. But the condition will usually correct itself with time and exposure to the elements.

THE CHEMISTRY OF EFFLORESCENCE

All concrete products contain cement which produces lime or water soluble calcium oxide.

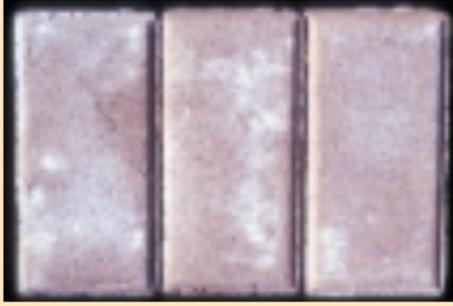
Lime can also be in the bedding sand, aggregate base materials, or soil. Although concrete pavers are solid, strong, and very dense, they contain millions of microscopic capillaries that run from the interior to the surface. Moisture from rain, sprinkler systems, underground sources, poor site drainage, or dew enters these microscopic capillaries.



Calcium oxide inside the paver

Efflorescence emerged from pores within a magnified area of a concrete paver. The calcium has been carried to the surface by water.

reacts with the water in the capillaries and forms calcium hydroxide. This rises to the surface, reacts with the carbon dioxide in the air, and forms a white haze of calcium carbonate. When moisture on the surface evaporates, the white haze of efflorescence becomes visible.



Pavers with efflorescence.

ELIMINATING EFFLORESCENCE

Most producers of pavers put chemical additives in the concrete to reduce the likelihood of efflorescence. In most cases, they do the job.

Pavers after cleaning.



Completely eliminating the chance of efflorescence, however, isn't possible because it's a natural byproduct of hardened concrete. It will stop when no more calcium hydroxide is available to move to the surface.

There are cleaners available that can remove efflorescence. These will enhance the natural beauty of your concrete paver project. Consult your paver supplier to find an appropriate cleaner.



FREQUENTLY ASKED QUESTIONS

About Efflorescence

Q. WHEN WILL EFFLORESCENCE STOP?

When the supply of calcium hydroxide is exhausted. If you live in an area of frequent rain and sunny days, efflorescence and its passing may occur quickly. The process may take much longer in drier climates. Typically, efflorescence will stop developing in approximately 18 to 24 months.

Q. WILL IT GO AWAY NATURALLY?

Since many factors are involved in its formation, it is difficult to determine when efflorescence will stop. Just as it appears naturally, efflorescence will eventually disappear. Over time, rainwater can wash and wear it away. In urban areas with acidic rainfall, efflorescence may go away faster than in rural areas.

Q. CAN IT BE REMOVED WITHOUT THE WAIT?

Yes, efflorescence may be cleaned with commercially available cleaners formulated specifically for concrete pavers. Cleaning should be performed immediately after efflorescence has appeared. It may reappear as long as the chemical reaction continues and cleaning may need to be done until efflorescence has stopped.

Most cleaners contain acid and detergents, so be sure to follow all label directions and environmental regulations. Careless or improper cleaning can result in injury, damage, and discoloration to the surface of the concrete pavers. Always conduct a test in a small, inconspicuous area before applying any cleaner to the entire area of concrete pavers. After cleaning, the pavers should be completely dry and free from efflorescence prior to applying any sealers.

For more information on efflorescence contact your nearest member, or visit our website to request: *ICPI Tech Spec 5, Cleaning and Sealing Interlocking Concrete Pavement—A Maintenance and Protection Guide.*

ICPI

INTERLOCKING CONCRETE
PAVEMENT INSTITUTE®



UNITED STATES

CANADA

1444 I Street- Suite 700
Washington, D.C. 20005-6542

P.O. Box 23053

55 Ontario Street

Tel: (202) 712-9036

Milton, Ontario L9T 2M0

Fax: (202) 408-0285

Email: ICPI@icpi.org

Web site: www.icpi.org



*For further information on concrete pavers, installation,
and contractors, contact your local ICPI member supplier.*

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