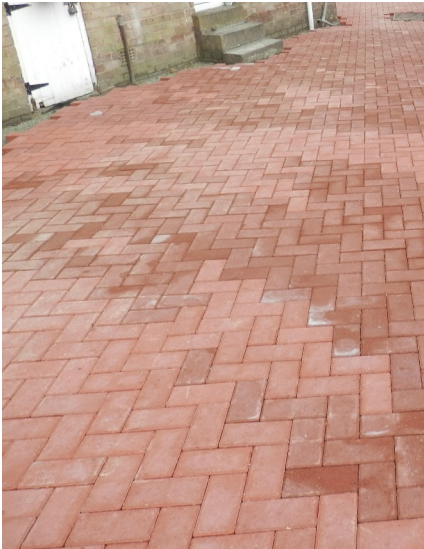


Efflorescence on Paving

Paving Factsheet 3 - November 2020



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Having invested in a nice new driveway or patio, the appearance of efflorescence is without doubt a worrying, annoying and disappointing effect for the homeowner and we as manufacturers strive to take every measure possible to avoid its occurrence.

The good news is that efflorescence is completely harmless, is not detrimental to the blocks, can be removed and will gradually disappear over time.

EFFLORESCENCE CAN AFFECT BLOCK PAVING OF ANY TYPE. THIS FACTSHEET EXPLAINS WHAT EFFLORESCENCE IS, WHY IT OCCURS AND HOW TO DEAL WITH IT SHOULD IT APPEAR.

What is efflorescence?

Efflorescence is a visual effect which can appear on the surface of a concrete product in the form of a white deposit. The nature of this deposit can be in the form of a fluffy powdery substance, a harder less distinct hazy bloom or a scum-like deposit.

With concrete paving these deposits are inorganic salts, predominantly calcium carbonate, although other sulphate and chloride salts may be present in lesser quantities. The effect can be random, affecting very few blocks or larger areas of the surface.

There are multiple variables which will determine whether efflorescence will ever be seen or not and we as manufacturers take all possible measures to minimise the probability of efflorescence occurring.

However efflorescence is extremely difficult to predict and to completely avoid as these soluble salts are present in the natural aggregates and cement used in the manufacture of the concrete.

It is practically impossible for any concrete product manufacturer whose products contain cement and lime to completely guarantee efflorescence-free products.

Efflorescence is a natural process that will gradually tail-off, fade and vanish over time and with natural weathering causing no lasting damage to the paved surfaces.

What causes efflorescence?

All concrete blocks and pavers contain natural substances containing an amount of soluble salts to a lesser or greater degree, depending on the block type and the origin of the raw materials used in their manufacture. This varies from plant to plant due to sourcing local supplies.

Moisture from the manufacturing process or from rain will interact with these soluble salts and will migrate to the surface due to the fact that all concrete products, even our strong and dense pavers are porous to some extent.

The carbon dioxide in the atmosphere will react with these soluble salts (e.g. calcium hydroxide will turn into the insoluble calcium carbonate) and as the moisture evaporates the characteristic white, crystalline efflorescence will be left behind as the efflorescence 'bloom'.

The mechanism for efflorescence begins as soon as the blocks are manufactured and will continue to the point that the soluble salts are used up within the block at which point the efflorescence will gradually fade.

As the insoluble carbonate salts are exposed to further carbon dioxide in the atmosphere they will slowly convert into soluble hydrogen carbonate substances and will wash away and dissipate naturally.

Efflorescence can come and go over a period of a few weeks but can take many months in some cases. Local conditions and climate play a part; damp shaded areas tend to be more prone to efflorescence than drier sunnier areas and efflorescence can be more pronounced during springtime following a wet winter.

Can efflorescence be removed?

There are a number of approaches for dealing with any efflorescence should it occur.

1. Leave it to naturally fade

Simply allowing the efflorescence to naturally fade away and vanish is the one guaranteed approach. This can take months, even years leaving the homeowner with a less than perfect driveway.

2. Regular dry brushing

This is our recommended method. Using a medium stiff-bristled brush (not a wire brush as this may damage the surface!), dry scrub the affected areas and sweep away as much from the whole surface as possible to prevent it from simply re-dissolving when it gets wet again. Do not wet scrub as this will simply redistribute the dissolved salts across the surface only to reappear again when dry. Following scrubbing & sweeping with a yard brush, the paving can be hosed down to wash away any dusty deposits.

This process will need to be repeated regularly initially and may indeed result in efflorescence seeming to get worse. This is however a good sign that the salts are being brought to the surface and is helping to speed up the natural exhaustion of the efflorescence-causing salts.

3. Chemical treatments

There are many products available claiming to deal with efflorescence which are usually based on detergents or acids. These products may well be effective in removing the visible efflorescence but the salts will continue to naturally migrate to the surface and form new deposits. The chemicals in these treatments may even damage the surface of the block or affect the colour pigmentation so we do not recommend their use for dealing with efflorescence.

4. Power washing

Although power washers are great for occasional seasonal general cleaning and will remove a lot of the visible efflorescence, much of it will be re-dissolved rather than being completely removed and therefore only provides a temporary fix as the salts will dry out and the deposit reappear. Regular use of a vigorous and powerful jet can actually damage the surface of the paver.

Dry brushing, sweeping and rinsing is the recommended method for removing efflorescence deposits. Wire brushing and using harsh chemicals to remove efflorescence may damage the paving surface and appearance and is therefore not recommended.

Sealants? Use with caution!

Sealants are a useful and proven method to preserve the appearance of paving long-term and provide added resistance to staining and spills. However we do not recommend the use of applying sealants to specifically deal with efflorescence. A surface sealant cannot prevent efflorescence and will simply trap it leading to the unfortunate situation where the efflorescence is visible but cannot be removed due to the sealant and therefore cannot naturally fade and dissipate.

If a sealant is desired it should never be applied to a newly-laid surface. Sealing should not be considered until long after any efflorescence has been completely exhausted and the paving, sub-bases and joints have had time to settle. Always follow the sealant manufacturers instructions.

Can efflorescence be prevented?

We take every possible measure to minimise the possibility of efflorescence occurring but the fact is that the natural and unavoidable constituents of the product can cause this effect albeit randomly and unpredictably.

Unfortunately there is little that can be done to completely prevent efflorescence occurring and the only approach is to deal with it once it appears as per the dry brushing method described above. This will quicken the process to the point that it permanently goes away.

As manufacturers we cannot be held liable for efflorescence appearing since it is a natural and harmless effect, completely non-detrimental to the product and will disappear naturally.

Key Points:

- Efflorescence is a relatively rare but is nevertheless an unwanted visual nuisance on newly laid paving. It is harmless, completely natural and will disappear over time through weathering as the salts within the blocks are used up.
- Dealing with efflorescence when it appears using our preferred method of dry brushing, sweeping and then rinsing off of the affected surface will help expediate the permanent exhaustion of efflorescence.
- We do not recommend the use of chemical or acidic treatments as these can damage the block surface and alter the pigmentation and appearance of the blocks.
- Power washers should be used sparingly for seasonal general cleaning down and only provides a temporary fix to efflorescence.
- Sealing a freshly laid paved surface is not recommended as efflorescence can still occur but would be trapped beneath the sealant, cannot be removed and cannot fade and dissipate naturally through weathering.
- Sealants should only be applied after it is certain that the efflorescence has naturally and permanently gone away and the paving, joints and sub bases have had time to settle.

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