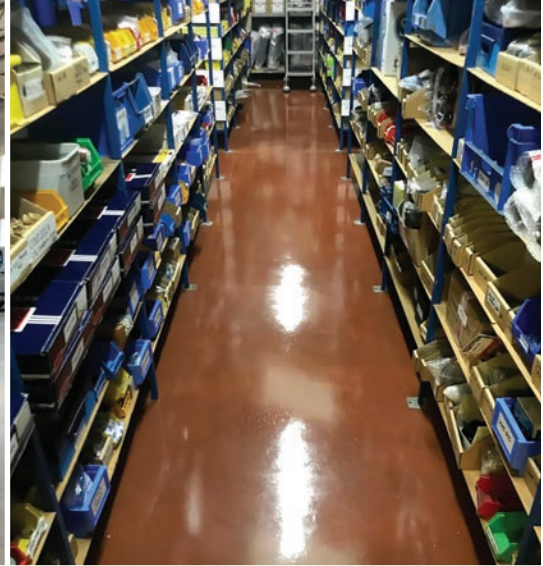




Fibre-suppressant dry-shake floor using PICS cure and seal. (Photo: Malin Industrial Concrete Floors Ltd.)



Hatcrete dry-shake warehouse floor application.

The changing shape of the dry-shake coloured concrete flooring market

Coloured concrete floors are attractive and distinctive, and can greatly improve the appearance of a building, as well as enhancing the branding of the organisation specifying the process. A steady increase in use over the past 30 years – for both domestic properties and large industrial units for manufacturing, warehousing and logistic industry companies such as Amazon and DHL – has meant that power-trowelling with dry-shake toppings is now commonplace. John Grant of PICS reports.

In September 1994, *Concrete* magazine reported that the use of monolithic dry-shake hardeners was one of the key improvements available to increase the wearing characteristics of industrial concrete floors on large-scale projects, including the red concrete floors in the recently opened Toyota factory in Derby. In his article ‘Dry-shake hardeners for concrete floors’⁽¹⁾, Andrew Mackenzie of Armorex provided details of where a dry-shake floor is often the most cost-effective option, with lifetime cost analysis proving that floors produced with dry-shakes can be substantially cheaper than normal power-trowelled concrete. With dry-shakes available in a range of colours, large areas of consistently coloured floors are laid rapidly, with good tolerances and sawn joints using telescopic spreaders in conjunction with laser screeds.

In 2019, the experience and practical knowledge gained by industry professionals over the intervening years has seen the

growth in specifications for dry-shake toppings that are able to create hard-wearing, monolithic concrete floors. These have now become commonplace – and a large industry has now developed around the supply of quality products and equipment for spreading, floating, trowelling and curing and sealing pigmented concrete floors.

PICS has been manufacturing dry-shake toppings in the UK for many years. The experience of managing director Andrew Goord, with his background in the early specification of dry-shake products at Armorex, alongside Hatcrete products (acquired in 2016), has seen PICS’ experience in the industrial flooring market grow. The knowledge and technical expertise required for the range of installation companies worked with is helping to increase the volume of coloured concrete flooring products used within the UK.

The UK coloured floor sector benefits from the efforts and support of the

Association of Concrete Industrial Flooring Contractors (ACIFC), which brings together contractors, material suppliers and service providers. James May of PICS, who has recently joined the board of ACIFC, says, “We wish to continue to improve the level of contractor support we can offer and gain a greater understanding of the issues facing the contractor network at site level.” ACIFC’s key objective is to raise standards in flooring technology and members are at the forefront of innovation in design, materials and construction techniques. With its breadth of representation, ACIFC is unrivalled when it comes to providing concrete industrial flooring experience.

The global market for coloured concrete floors has grown consistently, with many global brands specifying higher-engineered floors, with tolerances ever tighter to cope with the use of laser-guided equipment, particularly in the logistics sector. There are now many UK-based companies involved



Hatcrete dry-shake – hopper application.
(Photo: Nationwide Concreting Ltd.)



Hatcrete dry-shake with cure and seal.
(Photo: SJ Stanbury & Sons Ltd.)

in the installation of industrial floors along with suppliers of concrete, equipment and consumable products. Many employ long-serving staff who are now experienced industry professionals. These key individuals are involved in helping to shape the industry through technical product developments, as well as improvements in the finished quality of floor performance through the equipment and techniques used for placing and finishing floors.

Achieve colour

In the March 2018 edition of *Concrete* magazine, Ibrahim Fleyfel explored the options available in his article, 'Six ways to achieve a coloured concrete floor'⁽²⁾.

The options considered were:

- paint it
- stain or dye it
- add a tinted sealer
- colour all the concrete
- apply a resin coating system
- add a concrete colour surface hardener.

While these options do add colour to a concrete surface, only the last two will provide improvements to the durability and long-term performance of a floor by providing protection to the concrete from abrasion or physical damage.

There are many reasons to consider using a colour surface hardener (dry-shake). Four key questions for specifiers to consider that may indicate the benefit of using a dry-shake:

- Are any steel fibres present in the concrete?
- What is the cementitious content of the concrete?
- Does the concrete floor need to be coloured?
- How long will the concrete floor need to last?

The question as to why the concrete surface benefits from the addition of a dry-shake, rather than simply using an integral colouring system, has been approached by Chris Sullivan of ChemSystems who says, "Using colour hardener produces a stronger, brighter, more durable concrete surface than using integral colour alone. Still, contractors tend to avoid colour hardener for two reasons. First, integral colour is easier to use. No application is required, and there's no mess and it can simply be ordered from your ready-mixed concrete supplier. Second, many contractors don't understand how colour hardener works, and thus are afraid to use it. That's too bad, because using integral pigments limits your colour options and puts you at the mercy of the ready-mixed concrete supplier with regard to colour consistency."

A major technical benefit of using dry-shakes is to improve surface strength through decreasing the water:cement ratio at the surface of the concrete when power-trowelling. Other benefits include:

- Greater protection against damage caused by the abrasion effects of

trafficking and direct impact loading, and general wear and tear.

- Lifetime costs of flooring are reduced with lower repair and maintenance achieved through sealing solutions, which offer lower refurbishment costs.
- Aesthetics of a floor's appearance can be improved with less natural concrete colour variation.
- Dry-shake is a cost-effective method for adding colour. Different colours may be used for demarcation of floor areas.
- Where steel fibres are specified for reinforced concrete floors dry-shake can help to suppress steel fibres near the surface.
- Dry-shake aids overall lighting levels by enabling the concrete floor to reflect more light-reducing lighting and overall energy demand.
- Protecting the value of a client's asset and future rental or resale figures, where higher-quality flooring of an industrial building is provided to tenants.

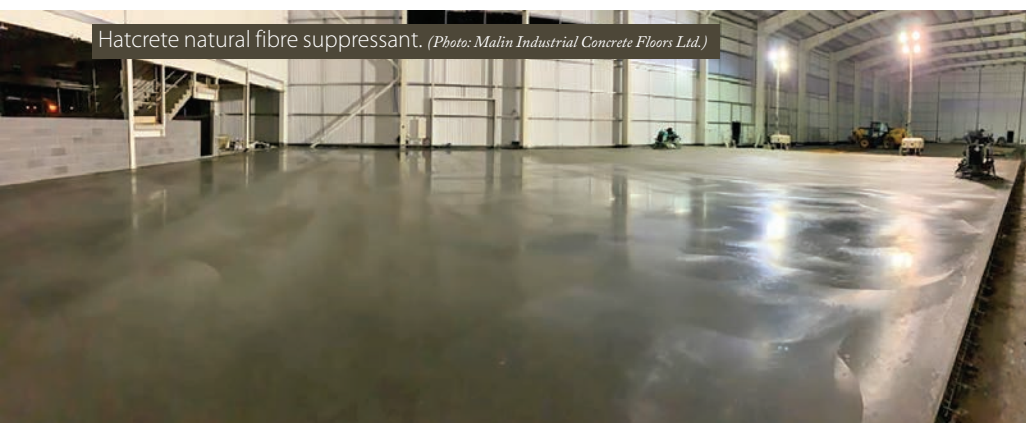
In a global market where demand for high-volume logistics, just-in-time supply and large-scale warehousing and distribution centres, many with automated and robotic packaging and picking systems, is constantly growing, so do the requirements for providing high-quality concrete floors. This requires installation within tight tolerances and in turn means that dry-shake products will continue to provide the solution for many such enterprises. ■

Further information:

For more information contact: <https://acifc.org>

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1. MACKENZIE, A. Dry-shake hardeners for concrete floors. *Concrete*, Vol.28, No.5, pp.48-49, September 1994.
2. FLEYFEL, I. Six ways to achieve a coloured concrete floor. *Concrete*, Vol.52, No.2, pp.17-19, March 2018.



Hatcrete natural fibre suppressant. (Photo: Malin Industrial Concrete Floors Ltd.)