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Market Size and Opportunity

Having a good understanding of the market for any new product development is a key driver, and it starts with the size of the opportunity.

According to a study compiled by Inkwood Research, the Global Ceramic tiles market accounted for revenues of \$91.17 billion in 2017 and is expected to reach \$178.1 billion by 2026, growing at a CAGR of around 10.49%

The study highlights the following main reasons for the extraordinary predicted growth

- Growing residential construction sector
- Robust growth in the flooring market
- Renovation of older buildings
- Infrastructure development
- Direct to tile digital printing

Typical Factory Ceramic Tile Kiln in 4ft Sections



Innovation in the Tile Market

Innovation is the next key driver, because with innovation comes the opportunity to develop new product offerings.

In the world of wall and floor tiles the innovation never stops. Today the tile market offers a myriad of choices over and above that of ceramic and porcelain tiles. In recent years the numbers of DIY enthusiasts has sky rocketed and in response to the customers need for ease of use methods of tile application and a more varied material choice, the manufacturers introduced 'Peel and Stick' wall and floor tiles. Which although a fair description of the application process, somewhat takes away from the quality of the tiles on offer.

Additionally the market for a more customized and personalized tile offering has emerged along with the digital market at large. Print shops that traditionally printed T Shirts and short run promotional items are now using flat bed printers, that use ceramic inks to cater for this new emerging market. However, the process is extremely slow and the results vary considerably.

In the tile factories though it is a completely different story.



Introducing Direct to Ceramic Tile Inkjet Printing

Direct to ceramic tiles using digital inkjet printing is not new, but as the printers have become faster and the inks and ink delivery systems have become more sophisticated, direct tile decoration in the tile factories around the world is fast evolving.

The leader in the direct to tile digital printing market is Durst, who have an installed base of over 600 printers in tile factories across the world. The latest of which is the Pictocer Lab HD, designed for short run graphics and photographs.

Currently the fastest ceramic tile printer prints just 60 sq ft an hour

Tiles printed on the Durst Lab Pictocer HD Digital Printer, using Ceramic inks fired 3x at up to 1250°C



Developing Matrixlok Tiletek (1)

We have now looked at both the market size and the opportunity and conclude there is more than enough reason to develop a tile product that seemingly will fill the gap in the market we have identified. This process we call the 'Must' list.

The product Must...

Get busy Inventin Matrixlok Tiletek be easy to apply, with little chance of error have the look, feel of the tile it is applied to. be able to be digitally printed conform to all ASTM tile testing standards work for new and existing tiles be able to be made in any run length be cost effective and affordable work on a number of different tile materials be fully customer customizable be able to be produced fast and efficiently be able to be sold wholesale and at retail



Developing Matrixlok Tiletek (2)

It is now also possible to describe Matrixlok Tiletek in some technical detail.

Matrixlok Tiletek is a proprietary multilayer polymeric construction, that has special absorbable characteristics, which enables several different layers to chemically combine under controlled conditions of heat and positive force load. The primary function of Matrixlok is to provide a sub-surface digital image decoration, integrated into an extremely hard, durable and resistant top coat surface.

Matrixlok Tiletek Functional Layers

- Ceramic nano resin hard top coat
- Enamel absorption resin
- Aqueous piezo pigment Ink (digital)
- Duocoat, ink and resin absorbing surface
 - High impact polystyrene (Hips) base
 - Unsupported modified acrylic adhesive (PSA)
 - PSA adhesive release paper
 - Ceramic or Porcelain tile



Developing Matrixlok Tiletek (3)

With the 'Must' list complete we embarked on the development phase of the first Tiletek product application. Matrixlok on plain white ceramic tiles. 4" inch and 6". Under lab conditions, each material and process has been completely thought through, tested and documented and we now know, what materials to use, how to put them together and under what conditions they should each perform.

The newly developed application process for Matrixlok Tiletek is one that closely resembles the Peel and Stick process, using a pressure sensitive adhesive to permanently bond Matrixlok to the ceramic tile surface, with the all important additional step 'SEAL'





Developing Matrixlok Tiletek (4) The 'SEAL' Step

Ease of use application and being able put Matrixlok onto new and existing tiles is of paramount important to our newly developed process. In tests it has shown that just creating Matrixlok Tiletek and peel and sticking it to a tile does not permanently seal the edges of the tile sufficiently. However, if we heat up the tile edges, we have found that by melting the edge of the HIPS to the tile we can create a water resistant seal around it.

Heat Tool Design

Different Tool Tip Designs

Temp required 600°C+





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