

Water-based glazes and engobes for full digital applications

水性釉料和化妆土的全数码化应用

Ever since the first digital printer for ceramic tiles was introduced in 2000, the sector has undergone rapid, uninterrupted growth, leading to the digitalisation not just of the decoration stage but of the entire production process. It is in this context that Esmalglass-Itaca presented its water-based Full Digital process at this year's Cersaie, an innovative solution designed to make the process fully digital and suited to modern production lines.

The Full Digital process essentially involves using digital technology to apply the initial engobe, the effect ink decoration and the finishing glazes. A fully digital approach of this kind brings countless advantages: formulations with a lower water content and smaller weights compared to traditional applications, more uniform glaze applications (especially in the case of large size tiles with widths of 60 cm upwards), selective glazing synchronised with the graphic design, reduction in personnel costs and loss of material on the line, increase in quantity of first choice product, etc.

The decoration line digitalisation process was initially envisaged for large size tile production, which uses oil-based products suitable for existing printheads. These full digital production lines are being used with excellent results by large companies in Spain, Italy, Russia, etc.

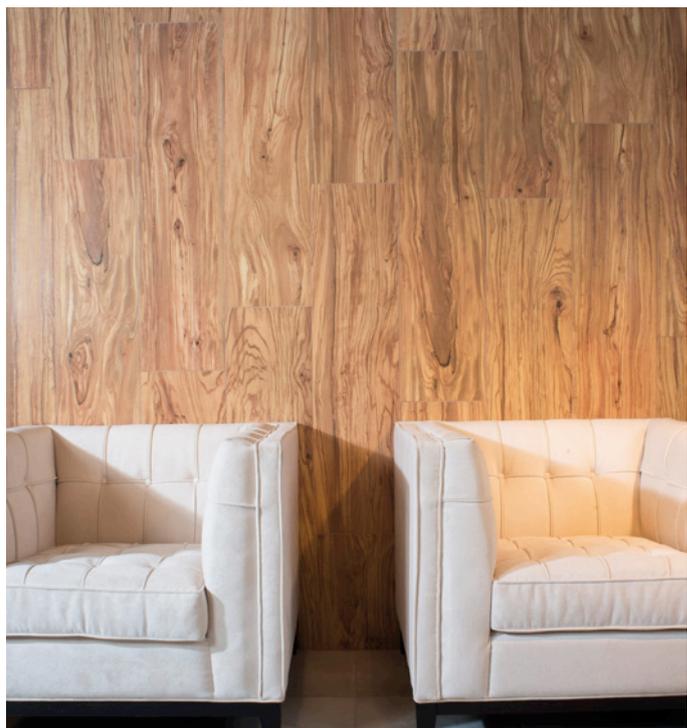
自2000年推出第一台瓷砖数码打印机以来，该领域得到了持续快速发展，引领了瓷砖装饰环节以及整个生产过程的数码化发展。

基此背景下，埃思玛格拉斯·意达加（Esmalglass-Itaca，以下简称“意达加”）在去年举办的博洛尼亚陶瓷卫浴展（Cersaie）上展示了其水性产品全数码工艺，这是一种创新性的解决方案，旨在完成工艺的全数字化，适应现代化生产线。

全数码化应用工艺实质上是使用数字技术进行首层化妆土、特殊效果装饰墨水以及表层釉料的应用。

这种全数码应用方案带来了诸多优势：与传统的应用方案相比，新配方的含水量较低，重量较轻，施釉效果更均匀（特别是宽度60厘米以上的大规格瓷砖的应用），选择性施釉与图案设计同步，降低了人员成本，减少了生产线上材料的损耗，一级产品的数量增多等等。

装饰线数码化工艺的设想最初是为大规格瓷砖生产而提出的，其使用适用于现有喷头的油性产品。这些全数码化生产线正被西班牙、意大利、俄罗斯等国的大型企业使用，效果极佳。



However, if the applied quantities exceed certain limits, the application of glaze-engage and the final oil-based covering may produce unpleasant odours at the kiln exit. To solve this problem, Esmalglass-Itaca group proposes the use of water-based formulations for the initial engobe and the final glaze. The development of new high-discharge printheads designed specifically for water-based materials has allowed for the production of a full range of engobes and glazes for digital printers that bring further advantages with respect to those of a Full Digital process. One of these is greater environmental sustainability. The use of water results in a significant reduction in atmospheric emissions and in odours caused by combustion, which in many cases are entirely eliminated. The olfactometric tests performed have given results of around 500 EOU (European Olfactor Units), almost 6 times lower than the levels established by the European standards (3,000 EOU) as not causing discomfort to humans.

The water-based Full Digital process formulated by Esmalglass-Itaca is ideal for all sizes and types of product. The Spanish company began studying these products in 2011, when it won the Alfa de Oro award for producing the first tile in an entirely digital process. The process was patented that same year. X



但是，如果施釉量超过一定限度，那么化妆土和最终的油性覆盖物可能会在窑出口处产生难闻的气味。

为了解决这个问题，意达加集团提出了在第一层化妆土和最后一层釉料中使用水性配方。专门设计开发用于水性材料的新型大墨量打印头，能使数码打印机应用各种化妆土和釉料，从而为全数码化工艺带来更多优势。

其优势之一就是进一步实现环境的可持续性。水的使用可显著减少大气排放和燃烧引起的气味，在许多情况下还可以完全消除。嗅觉测试得到的结果是大约500个EOU（欧洲嗅觉单位），比欧洲标准（3000个EOU）所

规定的水平低近6倍，因而不会给人造成不适。

由意达加研制的水性全数码工艺适用于各种尺寸和类型的产品。这家西班牙公司于2011年开始研究这些产品，当年意达加首次使用全数码化工艺生产瓷砖而荣获阿尔法（Alfa de Oro）金奖。该工艺也在同年获得专利。X

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