Digicol, the new generation of digital glues

Digicol：新一代数码胶水

Giorgia Ferrari, Vittorio Vandelli, Smaltochimica (Spezzano di Fiorano, Italy)

Smaltochimica began developing products for digital decoration in 2014 when it launched its NIK series of solvent-based digital inks with a wide range of colours.
In 2016, it added the SDM range of digital materials and special effects.
With the growing use of digital technology, efforts to advance ceramic production and decoration increasingly focused on complete digitisation of the ceramic process and on the diversification of materials and sizes.
One aspect that prompted keen interest was the surface application of grits and powders to produce innovative material and visual effects, from full-field honed surfaces to the finest graphic details.
In 2017 Smaltochimica decided to concentrate on the development of digital glues, materials that combine extensive aesthetic potential with all the opportunities of digital technology.
Digital glues offer numerous advantages compared to traditional grit pastes:

- *greater uniformity of the decorated surface,*
- *possibility of applying high-definition shaded graphic designs,*
- *superior aesthetic results from the grits in terms of applied weight (lower consumption) and the effect obtained after firing,*
- *smaller quantity of water supplied during decoration, making them ideal for decorating large size tiles.*

*These are the principles behind the **Digicol series of adhesive products for grits and powders certified by all the leading manufacturers of digital printing machines and printheads.***
*These glues are divided into 4 subcategories: **organic, inorganic, eco-inorganic and water-based inorganic.***
All products in the Digicol series have excellent gluing capacity and perfect definition following application. In view of the many variables involved (printheads, rheological requirements, ceramic surfaces and graphic designs), a wide range of glues have been developed for each subcategory.
With an average application of between 60 and 80 g/m^2 of Digicol it is possible to glue grit weights ranging from 350 to 700 g/m^2 depending on production requirements.
*The first Digicol glues to be launched onto the market were the so-called **Organic Digicol glues**.*
The strengths of these products are their filtration simplicity and the absence of jetting issues on digital printheads; their main weaknesses are short bonding times (meaning that intermediate storage times must be kept short) and the difficulty in creating shaded graphic designs.

斯玛图（Smaltochimica）于2014年开始开发数码装饰产品，推出了具有多种颜色的NIK系列溶剂型数字墨水。2016年，它增加了SDM数字材料和特殊效果墨水。
随着数字技术使用的持续增长，陶瓷生产和装饰越来越关注陶瓷工艺的全数字化以及材料和规格的多样化。
干粒和粉料的表面应用引起了人们的浓厚兴趣，它们能够产生创新材料和视觉效果，包括立体哑光面及精细图形。
2017年，斯玛图决定专注于数字胶水的研发。这些材料具有广泛的审美潜力，包含数字技术的无限可能。
与传统的干粒粘贴相比，数字胶水具有无数优点：

- 装饰表面更均匀，
- 可以应用高分辨率深色图形设计，
- 无论从应用后的重量（较低的消耗量）还是从烧成效果看，都使干粒获得优异的美学效果
- 装饰过程中用水量更少，是装饰大规格瓷砖的理想选择。

这些都是Digicol系列用于固定干粒和粉料的胶水的优点，获得了**全球领先的数码喷墨机和喷头制造商的认证**。
这些胶水分为4个子类别：**有机、无机、生态无机和水性无机**。
Digicol系列的所有产品都具有出色的粘合能力，应用后呈现出完美的清晰度。鉴于所涉及的变量较多（喷头、浆料要求、陶瓷装饰和图形设计），针对每个子类别的一系列胶水已经研发成功。
每平方米平均使用60至80克的Digicol，可以根据产品需求可以将350至700克的干粒进行固定。
第一批推向市场的Digicol胶水就是所谓的**有机Digicol胶水**。
这些产品的优势在于过滤简单、在数码喷头上不会出现喷印问题；它们的主要缺点是粘合时间短（意味着中间存储时间必须维持在较短时间内）、难以形成深色图形。
无机Digicol胶水因含悬浮固体而表现突出，这款产品的研发能够确保即使在细枝末节之处都能达到最佳的喷印精度，并具有持久的粘合力。这类Digicol胶水的缺点是它们的气味和分子类型被释放到烟道排放物中。当胶水应用于整个瓷砖表面时，这个缺点尤为突出。

Inorganic Digicol glues *stand out for the presence of a suspended solid and were developed to ensure optimal printing definition in even the smallest details and long-term bonding capacity. The defect of this class of Digicol glues is their odour and the type of molecules that are released in flue emissions, especially when the glue is applied over the entire surface of the tile. Based on studies conducted at the University of Modena and Reggio Emilia, Smaltochimica has further improved these products by introducing its* ***Eco-Inorganic Digicol glues****, a series of products designed to reduce flue emissions in terms of both the type and quantity of organic compounds emitted. A partnership with a leading ceramic manufacturer for in-situ analysis of the flue emissions of the various Digicol products has allowed Smaltochimica to verify the effectiveness of the research undertaken and to evaluate future steps.*

In addition to these analytical checks, Smaltochimica has already begun research on a line of ***water-based Inorganic Digicol glues.*** *An initial product has been formulated and is undergoing the certification process by the leading plant and machinery manufacturers. These materials maintain the technical and application characteristics of solvent-based inorganic products but have the added benefit of potentially further improving the environmental impact of products.* ×

斯玛图吸收摩德纳大学和雷焦艾米利亚大学的研究成果，进一步对这些产品进行完善，推出了一款生态无机Digicol胶水。

这一系列产品有利于减少有机化合物排放的类型和数量。与领先的陶瓷制造商合作，对Digicol各种产品的烟道排放物进行原位分析后，斯玛图能够验证现有研究的有效性并评估未来的步骤。

除了这些分析检查之外，斯玛图已经开始着手研究一系列水性无机Digicol胶水。最初产品的生产方案已经制定，正接受领先工厂和设备制造商的认证。这些材料保留了溶剂型无机产品的技术和应用特性，但带来一项额外好处是拥有进一步改善产品的环境影响的可能。 ×

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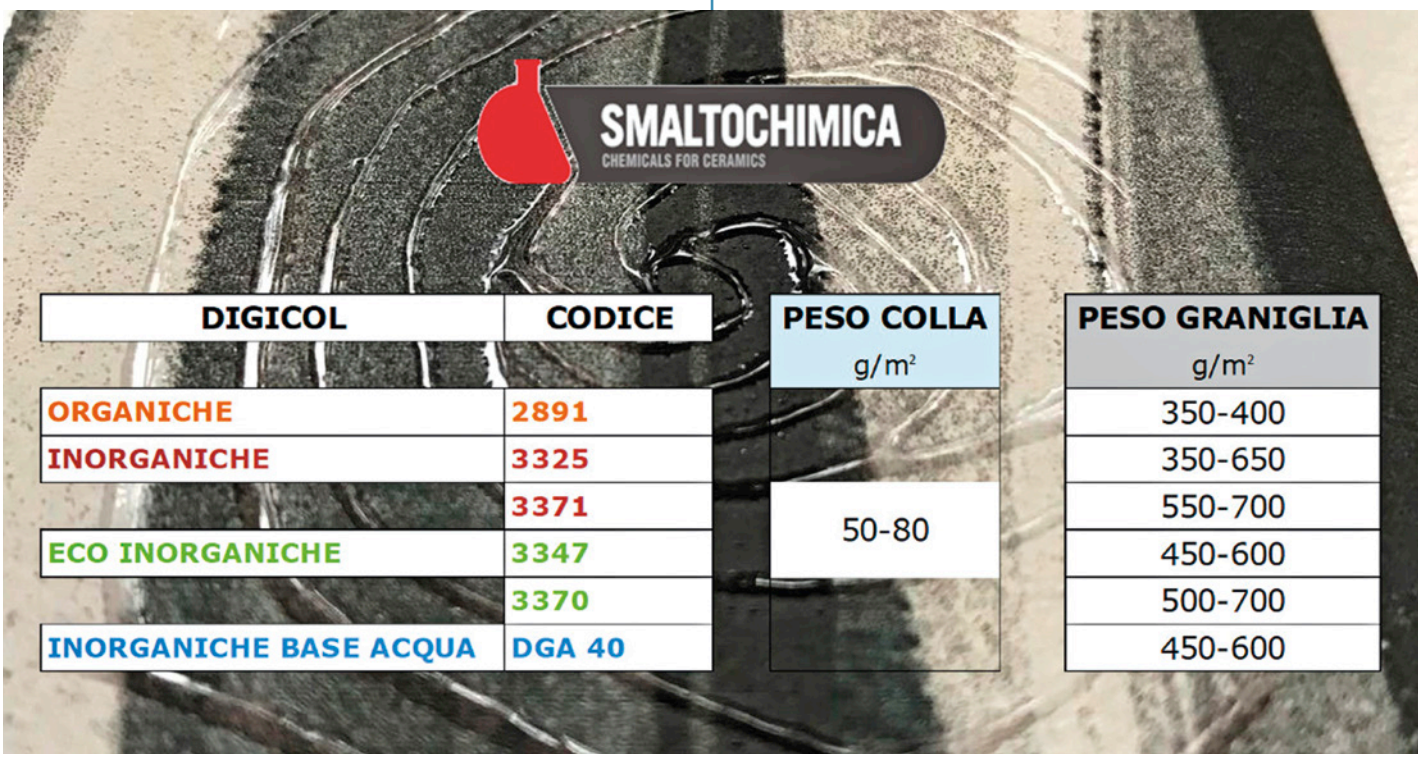

DIGICOL	CODICE	PESO COLLA g/m²	PESO GRANIGLIA g/m²
ORGANICHE	2891	50-80	350-400
INORGANICHE	3325		350-650
	3371		550-700
ECO INORGANICHE	3347		450-600
	3370		500-700
INORGANICHE BASE ACQUA	DGA 40		450-600