

THE ITALIAN TILE INDUSTRY AT THE TURN OF MILLENNIUM: CURRENT PROBLEMS AND PERSPECTIVES

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INTRODUCTION

The Sassuolo ceramic district is, up to today, world-wide leader in the production of ceramic tiles.

These results have been achieved not only owing to the aesthetic effects of the final products, but also to the presence in the district of a broad industrial fabric, which points to industrial innovations and research.

The innovations applied to tile production focus on all the aspects of the traditional industrial process: treatment of raw materials, milling, spray-drying of the slurries, glazing, firing and so on. Better products at lower costs, sold all over the world by an aggressive trade net represent the results.

The total amount of Italian tile production has reached the figure of more than 590 millions of square meters (1998), with a total turnover of more than 6.000 million US\$. As Table 1 shows, the tile production is more than half of the overall ceramic production in Italy.

TOTAL TURNOVER: 9.000 US\$ millions

TYPOLOGY	TURNOVER %
Tiles	55
Ceramic plants and technologies	21
Bricks	14
Baths and porcelains	5
Other traditional ceramics	3
Innovative ceramics	1
Refractories	0.5

Table 1. The Italian ceramic industry: turnover breakdown in terms of product typologies (1998).

Even if the reported data show the predominance of the tile industry, in the last few years tile production has met with some periods of crisis (1996/7, 1998) which have, at the present time, only partially been overcome.

As a consequence, Italian tile production could foreseeably be overtaken in the near future by Spanish tile production (Castellón district), which has reached the figure of 520 millions of sq. meters/year (1998 data).

DIFFERENT ITALIAN TILE PRODUCTION LINES

From a general point of view, the prevalent typologies in Italian tile production could be summarized as follows:

- 1) Single-fired white earthenware: a few years ago, this type of product reached 50 % of total tile production, but at present is affording marketing difficulties and is in a conversion phase.
- 2) The so-called "porcelain gres": these products, both glazed and unglazed, are growing in importance from day to day and have reached 20% of total production. The porcelain tiles have to date permitted high profits owing to the fine effects and to the strong resistance of these materials;
- 3) Red earthenware tiles: these products, both single-fired and double-fired, are characterized by a slowly decreasing market, however keeping good positions.

The typological distribution of Italian tiles is summarized in Table 2.

 TOTAL PRODUCTION: 590 millions m².

TYPOLOGY	TURNOVER %
White single-fired earthenware	35
Red single-fired earthenware	16
Double-fired red earthenware	14
Unglazed porcelain tiles	18
Glazed porcelain tiles	7
Others	10

Table 2. The Italian tile industry: production shares (1998).

The changes in production lines from traditional single-fired earthenware products to porcelain ones, which have been happening in recent time, are creating problems in raw materials supplies for the ceramic mixtures. In fact, since porcelain tile production needs materials having a low content in iron and titanium oxides, clays with high

toughness values are required. These materials are currently coming from the Ukraine, Turkey, Germany and France and strong variations in prices are to be foreseen.

In this regard, before starting with new ceramic productions, it is important to evaluate the availability of the raw materials and mine outputs, together with an evaluation of the political trends in some non-EU countries. All these problems could, in the future, lead the market towards undesirable directions.

CONCLUSIONS

The Italian tile industry seems, at present, to be heading towards a big growth of porcelain tile production, both glazed and unglazed, with partial replacement of white earthenware production, which in the recent past reached 50 % of total production volumes. This change, which is partially dependent on marketing considerations (the added value for porcelain tiles is much greater than for earthenware tiles), is also due to a reaction to the increasing poorness of earthenware mixtures, which have become more and more grey in colour (by using raw materials rich in colouring oxides), in conjunction with a decrease in their technological properties, since the adoption of faster firing cycles has given rise to products with larger porosity and smaller bending strength values.

Therefore, it is possible to consider the passage to a stronger and clearer material, as in the case of glazed porcelain tiles, as a logical search for more affordable and good products. This fact is capable of keeping the Italian tile production in the pre-eminent position that it presently holds in the world tile market.

This trend, however, struggles against the increasing cost of raw materials suitable for porcelain tile production (use of expensive Ukraine clays and Turkey feldspars, together with the neglect of low-priced local pegmatite sands). The change from earthenware to glazed porcelain tiles brings at least an added cost of 500-700 liras per kg of spray-dried product.

In addition, it is worth noting that the mines of pure materials are lacking in shipping and embarkation facilities, as the ports involved, belonging to developing countries, are often insufficient for the shipping of heavy, growing lots of materials.

These facts are reflected in the pressures on the supplying materials prices and on the reliability of shipment. Moreover, the change from earthenware to porcelain products needs to solve difficult plant problems and modifications, given by the use of more powerful presses and higher firing cycles.

The changes taking place in recent ceramic production can point to the attainment, in a not too distant future, of production quality levels where the so-called "glazed porcelain" will return to the appearance of good white, well-sintered earthenware tiles: this material attains high technological characteristics, but not so high as the ones required for "classic" porcelain tiles, which can also require a smooth process and therefore requires materials having almost zero porosity and a very clear white colour.

From another point of view, the need for new, highly qualified materials, is accelerating the technical level of glaze technicians, whose work, which is done on a noble, clear mixture like the one used for earthenware tiles, is attaining utmost levels of material appearance and characteristics.