TRENDS AND PROBLEMS OF THE ITALIAN TILE INDUSTRY

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ABSTRACT

The Italian tile ceramic industry, mainly located in the Sassuolo district, is up to day one of the world leaders in the production of ceramic tiles, above all for floor tiles production. This leading position was achieved not only owing to the aesthetic results of the products, but also due to strong efforts in research and in innovation.

The applied innovations concern all the aspects of the traditional industrial process, from milling and spray drying of the slurries, the differential charges of the mix in the presses, the development and applications of glazes, up to firing processes. All these features have lead to an optimisation of production cost and to an improvement of quality.

However, at present, but also in the last years, the market positions acquired by Italian tile industry were strongly bothered by growing international competition. Up to 2001, the Italian tiles production grew up to a total of over 630 Mm², overcoming the 1996/8 crisis, but in the years 2002 and 2003 this production decreased up to values of 605/610 Mm².

For tile makers, 2003 was a difficult year: the earnings decreased both in the internal and in the foreign market, passing from a turnover of 5.320 M€ (2002) to 5.190 M€ (2003), as a result of -8 M€ turnover at home and of -122 M€ in the foreign market. Only for EC countries a slight earning increase was observed.

The year 2004 showed only slight progresses as respect to 2003, with a +0.4% of turnover. The production remained at he same levels of 2003, in order to avoid further stocks overloading.

Further elements of worry are the decrease of profit margins in the last years, passing from 7.1% (2002) up to 4.4% (2003). This drop of the profit margins was essentially due to the increasing power of euro vs. US dollar, in conjunction with growth of fuel prices. These data are contradictory when we consider the world trend, because the world tile production reached, in 2004, the level of 7.000 Mm² (+7.6% vs. +4.6% in 3003). The world trend for 2005 will remain at high levels, with a probable increase of 7-8% in the production.

From the point of view of Europe, the rise of Spanish tile production is of great importance, which in the new millennium reached and surpassed the volume of 600 Mm²/year. The Spanish production, however, is essentially based on wall tile production, while the Italian one is based on the floor production, which is normally higher in prices and this fact permitted a slight advantage in incomes for Italian productions.

For the future, the trends of Italian market are more strictly connected to the growing of Chinese production and to the variations of dollar and fuel quotations.

Therefore it is mandatory, for Italian tile industry, to make strong efforts in innovation and in research to permit the maintenance of the positions acquired in past years.

1. INTRODUCTION

The Italian tile ceramic district, located at Sassuolo, is up to day one of the world leaders in tile production; in fact, it makes more than 80% of Italian tile production and remains one of the leaders in Europe, together with the Spanish ceramic district of Castellón.

The leading position reached by Sassuolo district was developed in the past decades and is due to several factors, as the optimisation of production technologies [i.e. milling and spray drying of the slurries, differential charges of the mix in the presses, development and applications of glazes, firing technologies]. All these features have lead to an optimisation of production cost and to an improvement of quality. Last but not least, it is important to remember the fine aesthetic results of the products, followed by a strong marketing politics directed towards the whole world.

However, not only at present, but also in the last few years, the market positions acquired by Italian tile industry are strongly bothered by growing international competition. Furthermore, important crisis factors are given by political turbulence of several world areas and, above all, the growing of new tile producers, mainly in countries characterised by low or very low personnel costs. To well describe this trend, it can be seen that, up to 2001, the Italian tiles production rose to a total of over 630 Mm²/year, overcoming the 1996/8 crisis, but in the years 2002 and 2003 this production decreased up to values of 605/610 Mm². The production data are flanked by the similar behaviour of employed workers and the total number of factories, as is shown in table 1. The decrease in production is parallel to the fall of export, which always represented a share of about two thirds in the volumes.

More in detail, 2003 was for Sassuolo a difficult year, with the earnings decreased both in the internal and in the foreign market: the turnover dropped from 5.320 M€ (2002) up to 5.190 M€ (2003), as a result of -8 M€ turnover at home and of -122 M€ in the foreign market. Only for EC countries a slight earning increase was observed.

Year	Produced tiles [Mm²]	Export [Mm²]	Internal market [Mm²]	Nº. of employees	Nº. of factories
1995	562	361	181	32.050	295
1996	554	363	166	31.850	280
1997	572	389	169	31.490	280
1998	588	405	170	31.152	266
1999	606	417	177	31.287	258
2000	632	436	187	31.370	253
2001	638	441	179	31.348	248
2002	606	438	171	30.798	241
2003	603	418	170	30.264	239
2004*	604	410	167	-	-

** Provisional data*

Table 1. Data of Italian tile production [1995-2004], from Assopiastrelle.

The year 2004 showed only slight progresses as respect to 2003, with +0.4% turnover. The production remained at he same levels of 2003, in order to avoid overloading of stocks.

Further elements of worry in the last few years have been the decrease of profit margins, passing from 7.1% (2002) up to 4.4% (2003). This drop of the profit margins was essentially due to the increasing power of euro vs. US dollar, in conjunction with growth of fuel prices. These data are contradictory when we consider the world trend, because the world tile production reached, in 2004, the level of 7.000 Mm² (+7.6% vs. +4.6% in 2003). The world trend for 2005 will remain at high levels, with a probable increase of 7-8% in the production.

Observation of European tile market shows, the constant growth of Spanish tile production, which has been of great importance, which reached and surpassed a volume of more than 600 Mm²/year and currently points to a goal of 700 Mm²/year.

The Spanish production, however, is essentially based on wall tile production, while the Italian one is mainly based on the floor production based, which shows higher prices: this fact permitted a slight advantage in incomes for Italian producers.

Another important factor in the future of Italian tile market is due to the growing competition of Far East producers, above all China. This factor regards both the presence of direct import of tiles but also, in the first place, the penetration of Chinese producers in near countries (e.g. Philippines and Japan). All these problems were enhanced by the heavy growing of oil world quotations and to the weakness of the US dollar vs. the Euro.

The presence of these international trends make mandatory, for the Italian tile industry, to make strong efforts in innovation and research.

2. SHORT OVERVIEW OF BASIC ITALIAN PRODUCTION LINES

The modifications occurred in the past years in the market have lead to a simplification of the main Italian tiles production lines and lead to a partial or total abandon of some older products.

In summary, the following products are important in the Italian tiles production:

- *Porcelain tile products*, which are divided into the two sections of glazed and unglazed products; this difference has lead to two unlike production lines, not only in the final aesthetic results, but also in the technological characteristics and in the philosophical approach to these materials.

  It can be observed that by 2000 porcelain tiles had become the main Italian tile product; this result was improved in the following years, as porcelain tiles reached 45% of production in 2000 and 60% in 2004 (if we see only floor tiles, this value reaches 70%).

  At the beginning, the porcelain tiles were produced from raw materials [Westerwald and Ukraine clays, Turkish feldspars, German pegmatites] of good purity and with an amount in Fe_2O_3 < 1 mass-%, fired at high temperatures [1220°-1240°C]. The excellent sintering with no porosity yielded to these products a good scratch resistance; furthermore, up to 1995, some of these products were glazed, permitting the use of raw materials less expensive and a slightly more rich in Fe_2O_3.

  However, in the recent years an increasing shift between the two products (glazed and unglazed) was observed, thus enhancing the market differences. In other words, the glazed products have often replaced the earthenware tiles, showing on many occasions lower prices, with strong effects on turnover. On the opposite side, the unglazed products have pointed to the high market sections, endeavouring to strongly imitate natural stones as marbles and granites by means of innovative technologies, as for example, applications of soluble salts. The spread between the two types of porcelain tiles appears in growth, thanks to the technological innovations in the production (double and triple powder loadings at the press, smoothing of the surfaces, yielding of large tiles up to dimensions of 60x60 cm and more, and many others), that were applied only on unglazed materials. However, the massive production of glazed materials created a general decrease in prices and a strong contest with foreign productions.

- *Single fired earthenware tiles*, which had attained a leading market position up to 1980 and are currently surpassed by glazed porcelain products. Also these tiles are divided in two different groups depending on the mass colours, as the white and the red products. Both these production lines are decreasing in importance, above all the white (or clear) products, since their show lower characteristics, as for example, higher porosity. The clear earthenware products have faced an increasing obsolescence that seem to point to a slow disappearance of the product, while the red tiles seem to do better in the market, owing to their country-style aspect and also to some technological aspects (resistance to frost) that are generally better than the ones of clear earthenware. In effect, the larger amount of Fe_2O_3

presented by red earthenware tiles leads to a lower porosity than for the clear products.

- *Porous tiles,* which are derived from the so-called "cottoforte" and occupy a limited production sector pointing to wall products with important visual effects but with lower technological characteristics. These tiles are mainly produced starting from the same bodies used for porcelain tiles, but with an addition of carbonaceous materials which permit a clear colour, an absence of shrinkage and the presence of porosity that makes these products good for wall applications.

  In past decades, these tiles were largely produced in Italy but, at present, they have been chiefly substituted by earthenware products. Porous tiles are important, above all, in wall tile production, where it is possible to obtain good visual effects, and when mechanical strength is not of primary importance. A simple glance at the production data shows that porous tiles, in the last decade, have halved their volumes.

- *Special formats,* which represent a little but constant production and are connected to marginal products (baseboards, steps, decorated pieces and so on). These pieces are often made in different plants, more suitable for low production volumes.

The volume productions for different tiles types are shown in table 2.

Year	Unglazed porcelain tiles	Glazed porcelain tiles	Single-firing earthenware [total]:	Double-firing porous earthenware	Others
1995	77	5	352	94	30
1996	80	15	341	88	26
1997	102	25	328	86	27
1998	107	70	299	83	29
1999	128	91	282	76	29
2000	143	125	260	73	31
2001	147	161	231	66	31
2002	140	189	187	61	29
2003	138	206	170	57	32
2004*	139	211	167	56	31

* *Provisional data*

Table 2.Production data divided by typologies [1995-2004], from Assopiastrelle [All data are in Mm^2].

3. RECENT HISTORY AND CURRENT TREND OF ITALIAN TILES

The Italian tiles kept, up to 1990, the world record in production both in volume and in turnover. This supremacy, however, was largely surpassed in the 90's by China production (that reached the volume of 1.000 Mm^2/y) and attained also by Spain tile production. But also the output of Brazil, Turkey and Mexico greatly increased in the same period. All the foreign productions, however, were aided by massive export of Italian plants and equipments. The significant variations in the world tile production occurred during the 90's is shown in the Figure 1.

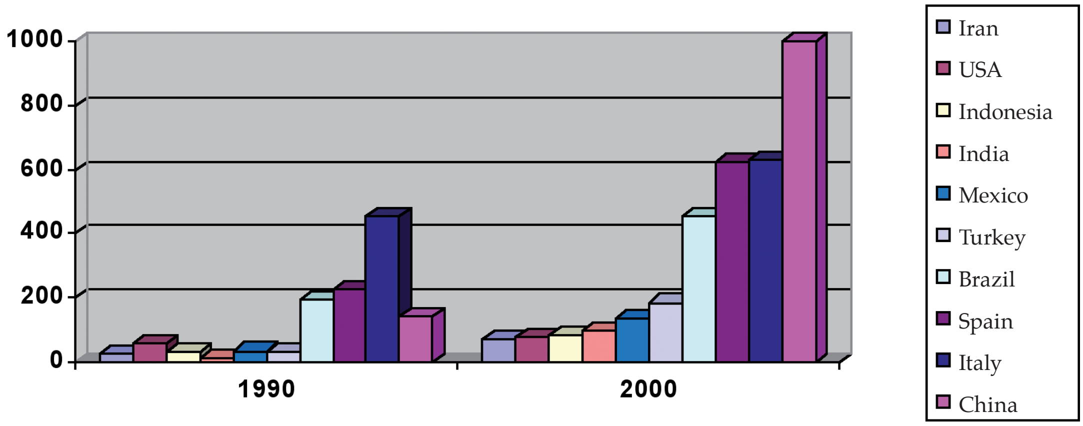

Figure 1. World tile production in the 90's [from Prometeia]

During the 90's, the trend of Italian tile export maintained his supremacy, but over the years the competition was stronger, as can be seen in the Figure 2. In the whole decade, Italy and Spain were the main tile exporters of all the world and reached, together, an amount of about 37 % world export. However, a lot of countries greatly increased their export, above all China, Brazil and Turkey. This phenomenon has increased in the last few years, when several tile makers have greatly raised n their exports and created further problems for the Italian tile industries, as summarized in table 3.

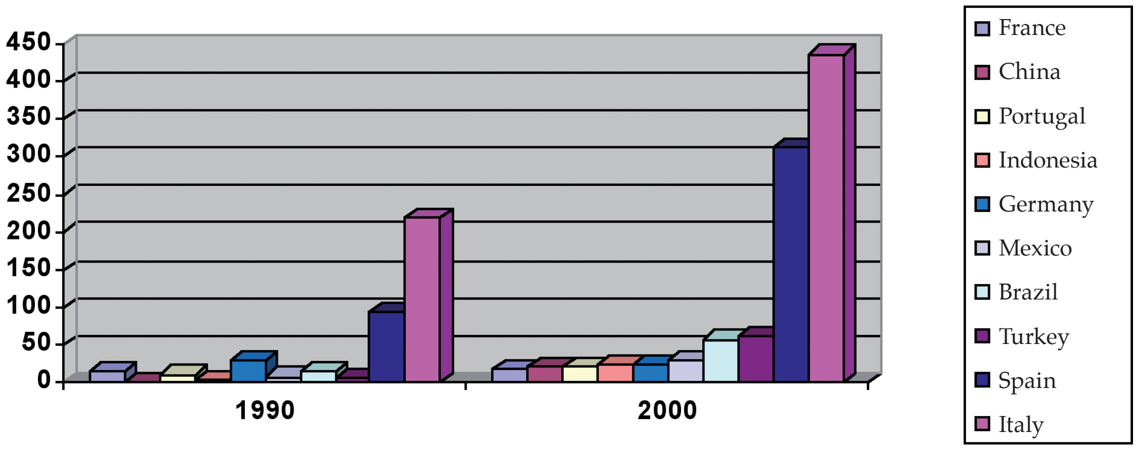

Figure 2. World tile export in the 90's [from Prometeia]

From the point of view of consumer countries, it can be seen that USA are the first consumer of tiles, reaching in the year 2000 the amount of 220 Mm^2. However, considering the union of euro countries, these appear as the first world market with a consumption of about 800 Mm^2.

A short view to the current trend of the tile industry in the two main foreign tile producers can be summarized as follows:

- *Spain*, has , since 2001/2002, replaced Italy as the first European tile producer, and reinforced their supremacy as regard to wall tiles, which are currently about 50 % of its tile production. On the contrary, the porcelain floor tiles, with 10% of share, grew much more slowly and currently appear not to be of the same importance as wall tile production. This fact points to a growing specialization between Spain and Italy, where both countries maintain and consolidate the respective production sectors.

- *China* seems to carry on its fantastic trend in all the industrial sectors. At present, the Chinese tile production is about three times higher than the Italian one, reaching the amount of ≈ 1.800 Mm^2/y! The production of unglazed, polished porcelain tiles is estimated about 400 Mm^2/y.

  The export of Chinese porcelain materials, almost entirely involving polished tiles, together with very low prices and in conjunction with an aggressive export policy, has largely modified the international market and urge the others great producers (Italy, Spain, Brazil, Turkey) to introduce new types of non-polished porcelain tiles with innovative visual effects. On the contrary, the Chinese export of glazed porcelain tiles is not so important and reaches about one half of the polished tiles market. Chinese tile exports currently amount to more than 150 Mm^2/y, but these data can be expected grow shortly. By way of example, the Chinese tiles are sold in the USA (which currently represents a strong growth market) at an average price of 3.5 US$/$m^2$, while the Italian ones are sold at 10 US$/$m^2$.

Year	Italy		Spain		Brazil		Turkey	
	Prod.	Export	Prod.	Export	Prod.	Export	Prod.	Export
1998	588	405	575	250	399	45	198	41
1999	606	417	601	255	412	48	204	48
2000	632	436	608	305	445	50	205	50
2001	638	441	615	322	455	52	205	50
2002	606	438	655	347	505	60	260	55
2003	603	418	680	353	520	88	295	72
2004*	604	410	695	n.a.	545	n.a.	275	n.a.

** Provisional data*

Table 3. Production data of some important tile producers [All data are in Mm^2].

After these data, it is mandatory, for the Italian porcelain tiles makers, to present a better and wider offer of materials and pointing to the high market segments, which appear up to today the only profitable ones. The competition between the producers is to be seen as a boost to innovation, which should involve all the production sectors: visual effects, production technology, materials technical characteristics, store handling and market techniques.

4. CONCLUSIONS

The present investigation showed the following:

- The production of porcelain tiles has reached, in Italy, more than 60% of total output. The production of unglazed materials (at present called "technical" porcelain tiles), leading up to 2000, was surpassed by cheaper glazed tiles;

- For both porcelain types, large differences in final prices are observed, therefore covering all the possible sectors of the market; however, the unglazed materials are considered nobler and can be very expensive, above all for particular production types;
- New technologies are increasing, both in the bodies formation phases (double charges of powders, large tiles and so on) and in glazing phases, often made before pressing: these new processes have lead to the production of tiles with larger dimensions characterized by high prices;
- Thanks to the technological innovations, both the two porcelain typologies show high characteristics (scratch resistance, modulus of rupture, frost resistance) and it is possible to describe these materials more as special than as traditional ceramics;
- On the contrary, the increased technological efforts are not accompanied by an increase of prices and, in some cases, the porcelain tiles are sold at prices lower than the ones reached in the 90's by earthenware; this fact can explain the general decrease in revenues;
- The ratio euro vs. US dollar is high and represents another factor of crisis, forcing often the Italian tile makers to sell their products in the USA at non-remunerative prices; it is important to notice that the USA market, is scarcely for the earthenware products, but widely recognises porcelain materials;
- At present, it is possible to consider the word "porcelain" as equivalent to ceramic products;
- Finally, it is impossible to forecast a good future for the Italian tile industry without prolonged efforts, from now up to the future, in the technological improvements and in the aesthetic research.